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AUSTRALIAN BirdKeeper

VOL 38 ISSUE 9 • JUN-JUL 2025

Advice on **Parrots**

Black-capped LORY

Pictorella MANNIKIN

Pin-tailed Whydah

Aviary Design

Mary-lee SLOAN

ISSN 1030-8954
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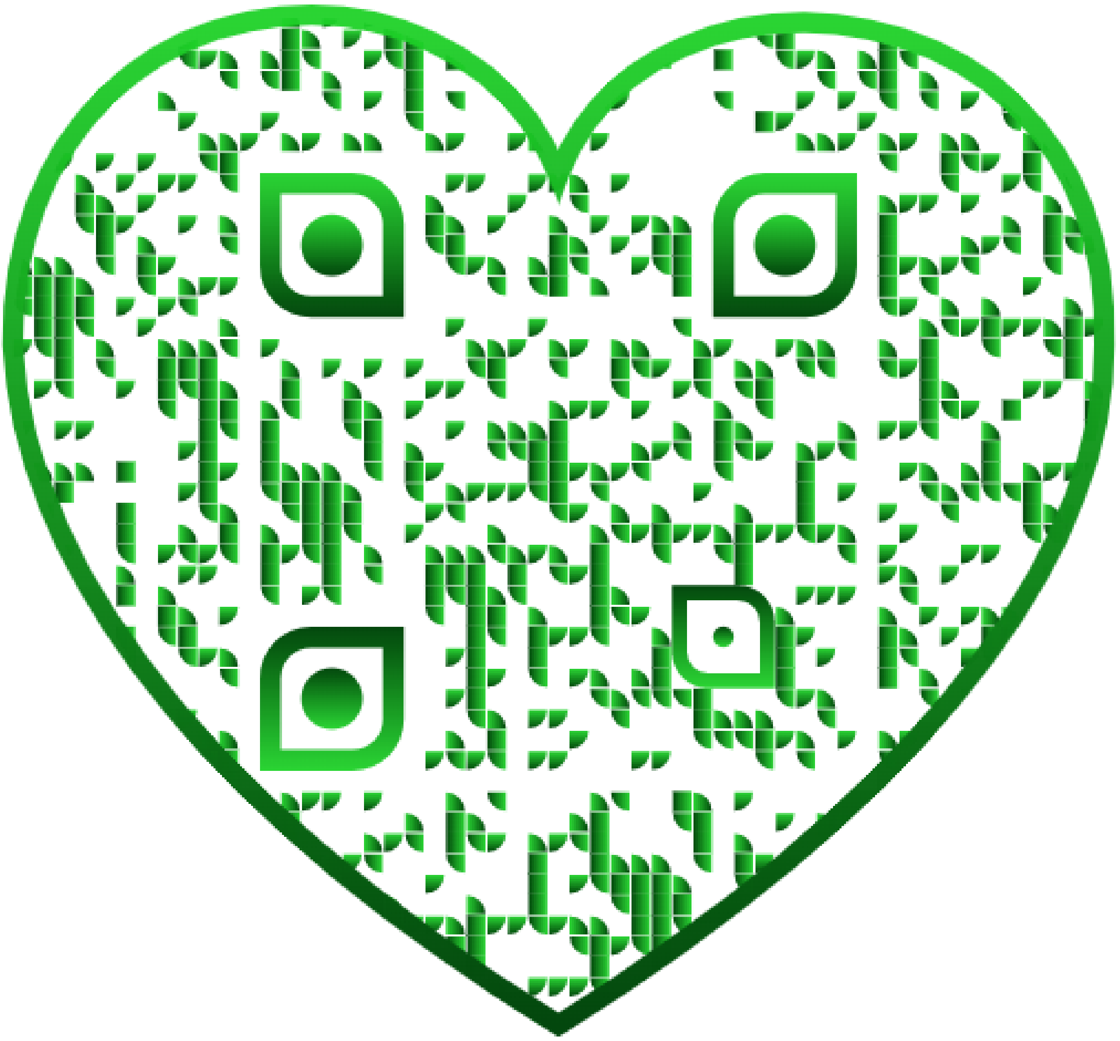

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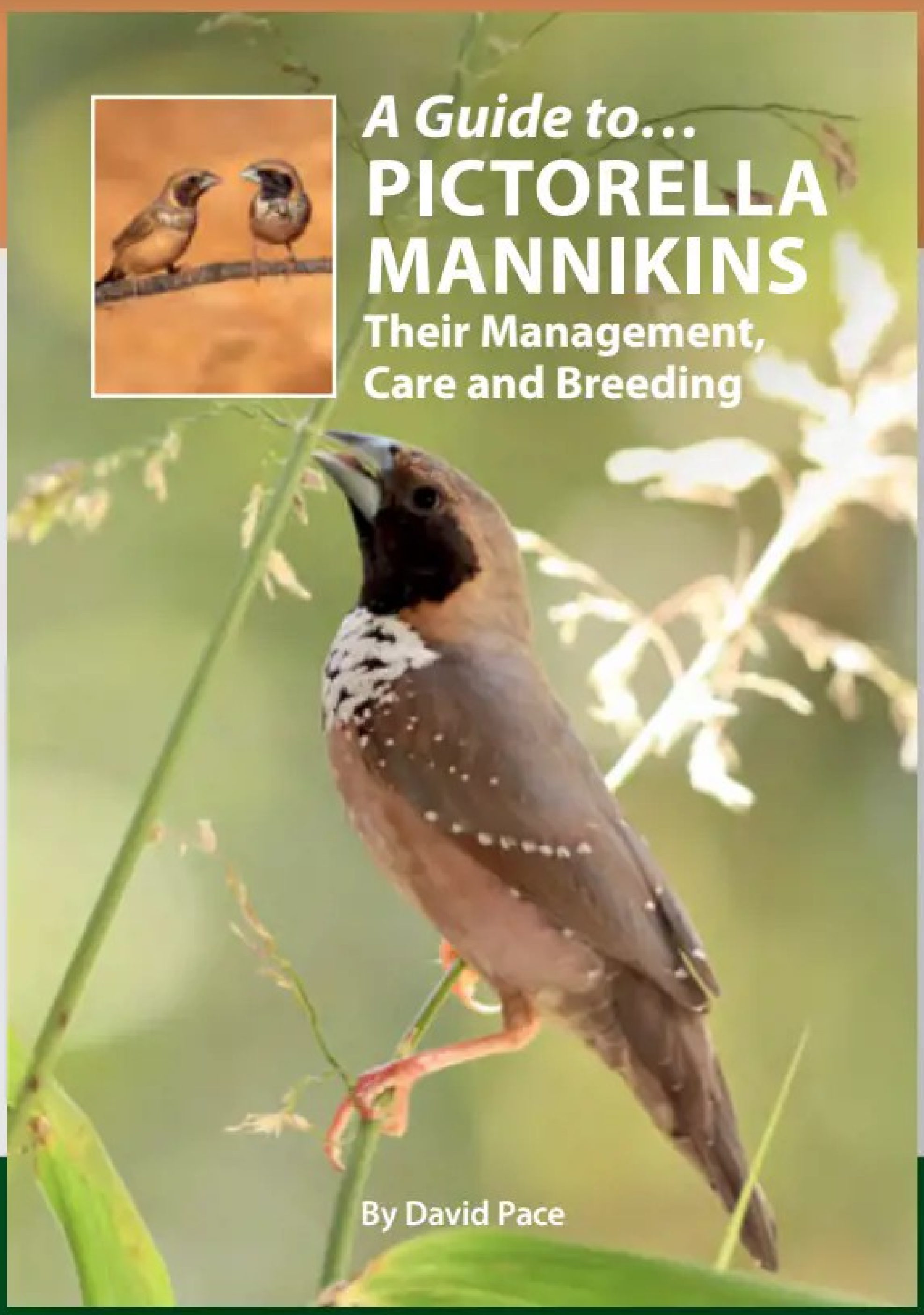
A Guide to…
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ON THE COVER
Pin-tailed Whydah
PHOTO
SHEAU TORNG LIM

NEXT ISSUE
Released Friday
8 August 2025

editor's notes

FROM EDITOR

SIMON DEGENHARD

G'DAY friends and fellow bird lovers, and welcome to the next instalment of your favourite Aussie bird mag. As always, I hope this issue finds you well and enjoying this wonderful hobby of ours.

Is it just me, or does each issue seemingly come around sooner than the last?! This year is rocketing by. I hope that you have all enjoyed our offerings so far during 2025, and as always, welcome your feedback and suggestions.

Weather-wise, no doubt, we are all aware of the extreme conditions that millions have recently faced on the East Coast of Australia, and particularly the NSW Mid-North Coast. Where record flooding occurred during May. My thoughts go out to everyone affected. I wish you all well in the recovery efforts and hope that you and your birds are now safe and sound.

The Bird Expo season has been in full swing over recent months, and I've heard many positive reports from across the country. Talk of great crowds and stunning birds abounds, with numerous mentions about the Orange, Gunnedah, Shepparton and Hunter Valley Expos, which continue to raise the bar year after year.

FINCHES '25 is almost upon us and is a must-attend for any finch lover! It is being held in Brisbane from July 4-6. It promises to be a fantastic event, as per previous renditions. ***BirdKeeper*** will also be launching David Pace's *A Guide to...PICTORELLA MANNIKINS, Their Management, Care and Breeding—Avian husbandry notes for the Pictorella Mannikin Heteromunia pectoralis (Second edition)*—at the convention. More details can be found in the ad on page 505.

We kick this issue off on the opposite page with an excellent article by experienced finch breeder Adrian Byrnes. He details his experiences with the Pin-tailed Whydah, a beautiful African passerine that we are lucky to still have in Australian aviculture.

Further along, from page 490, we have another great piece by Peter Odekerken; this time, Peter writes on the stunning Black-capped Lory. Most will know of Peter's decades-long passion for lories and lorikeets, a group of birds that are clear favourites of his. As expected, this article doesn't disappoint, providing valuable insights into this wonderful lory, both in the wild and in captivity.

Next, we have a great write-up on aviary design by experienced NSW aviculturist, Steve Sass. Drawing from decades of experience, Steve outlines the design considerations that he believes to be most important. Well worth the read, this detailed piece is a wealth of information; read Part I starting on page 494.

Commencing on page 497, we have a wonderful article on New Zealand aviculturist, Mary-lee Sloan. Written by her close friend and ***BirdKeeper*** regular, Jade Welch, it tells the story of Mary-lee's avicultural journey. A strong, passionate and determined woman, Mary-lee's contribution to aviculture in New Zealand and beyond has been and remains very significant. Thank you for your dedication to our great hobby, Mary-lee.

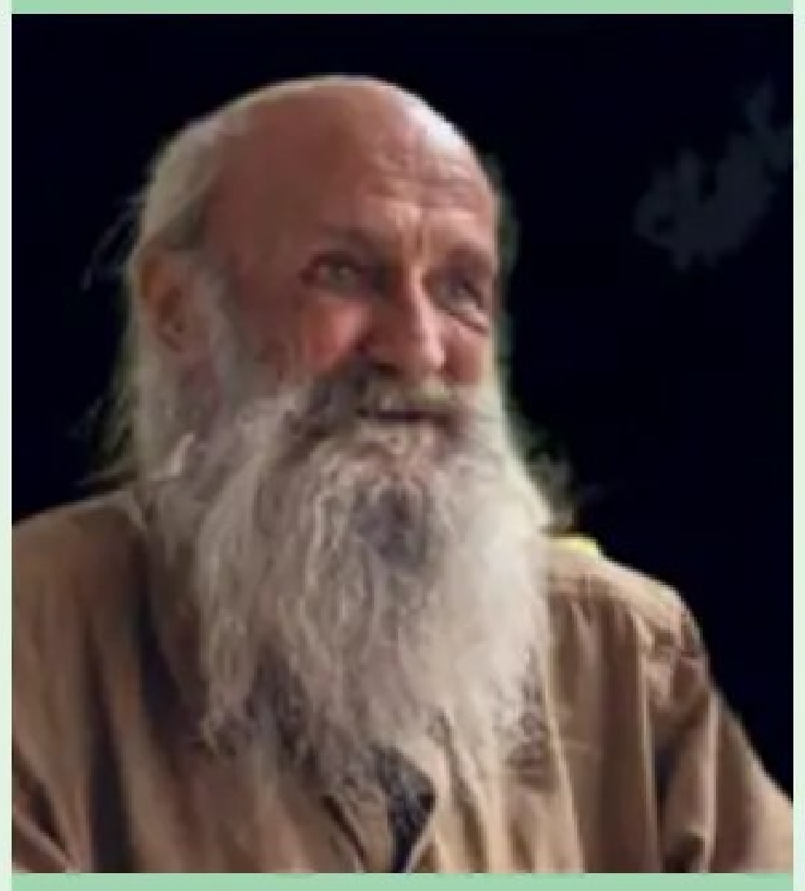
Col Roberts is a celebrated Australian wildlife photographer. From page 506, we are treated to a small slice of his beautiful work. I do not doubt that, as bird lovers, you'll enjoy Col's photography, and I will say that this won't be the last time his stunning images grace the pages of ***BirdKeeper***.

Pascal Stalder has written an intriguing article on the World of Birds Foundation (WOB), a Dutch rescue and breeding centre. Founded by Michel van der Plas and his wife, Bonny Talsma, it is an incredible organisation, by all accounts. With Michel's unexpected passing late in 2024, Talsma has continued their work, remaining as dedicated as ever to the cause. You can read all about WOB in Part I of this piece, starting on page 516.

With the passing of Bruce Kubbere in January this year, the Australian zoo community lost an iconic figure. Bruce was a pioneer in the zoo world whose impact will be felt for generations to come. Featherdale Wildlife Park is certainly his most well-known legacy; however, those who were lucky enough to know him and work alongside him will be forever thankful for the time spent with him and the knowledge he imparted on them. Whilst I, unfortunately, didn't get the chance to meet Bruce, the esteem with which he is held by so many speaks volumes to the man he was. Thank you for your immense contribution, Bruce.

Bruce Kubbere

We also celebrate the life of another bird lover, that of Rodney 'Bushy' Bushell. Bushy was a well-known identity in the Wyndham region in Western Australia. A passionate birder and photographer, Bushy was a great supporter of the Save the Gouldian Fund (STGF). In recent years, he ably assisted the STGF with their annual Gouldian counts. My only interactions with Bushy were when I sought to use some of his photos for publication in ***BirdKeeper***, to which he kindly agreed, providing some stunning images for the purpose. Thank you, Bushy.



Rodney 'Bushy' Bushell

To round the issue off, we have our other numerous regulars—Rafael Zamora Padrón offers advice for parrot breeders; David Pace writes on the Pictorella Mannikin; Sam Davis writes on the recent ***BirdKeeper*** Tour to Singapore and Bali, along with the success of the Avicultural Display at the 2025 Sydney Royal Easter Show; Dr Bob helps us to understand Bumblefoot *(Pododermatitis)* in Captive Birds; EB Cravens fills us in on the importance of bird drinking water; Vickie Lillo takes us to the San Antonio Zoo; David Waugh offers insights into Scarlet Macaws in the Maya Biosphere Reserve; Dr Kit Prendergast explores the link between birdsong and human language; And Dr Claude Lacasse writes about a recent patient, 'Mc Steamy', the Noisy Miner. All in all, it is another jam-packed issue!

Without further ado, I will leave you to enjoy this edition of ***BirdKeeper***. Until next time, please take care and always remember to keep spreading the bird word!

Cheers, Simon

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PUBLISHED BY
Birdkeeper Pty Ltd
ABN 41 672 804 607

POSTAL ADDRESS:
PO Box 91 North Richmond
NSW 2754
Australia

International Standard
Serial Number ISSN 1030-8954

EMAIL
Editorial contributions
are most welcome.

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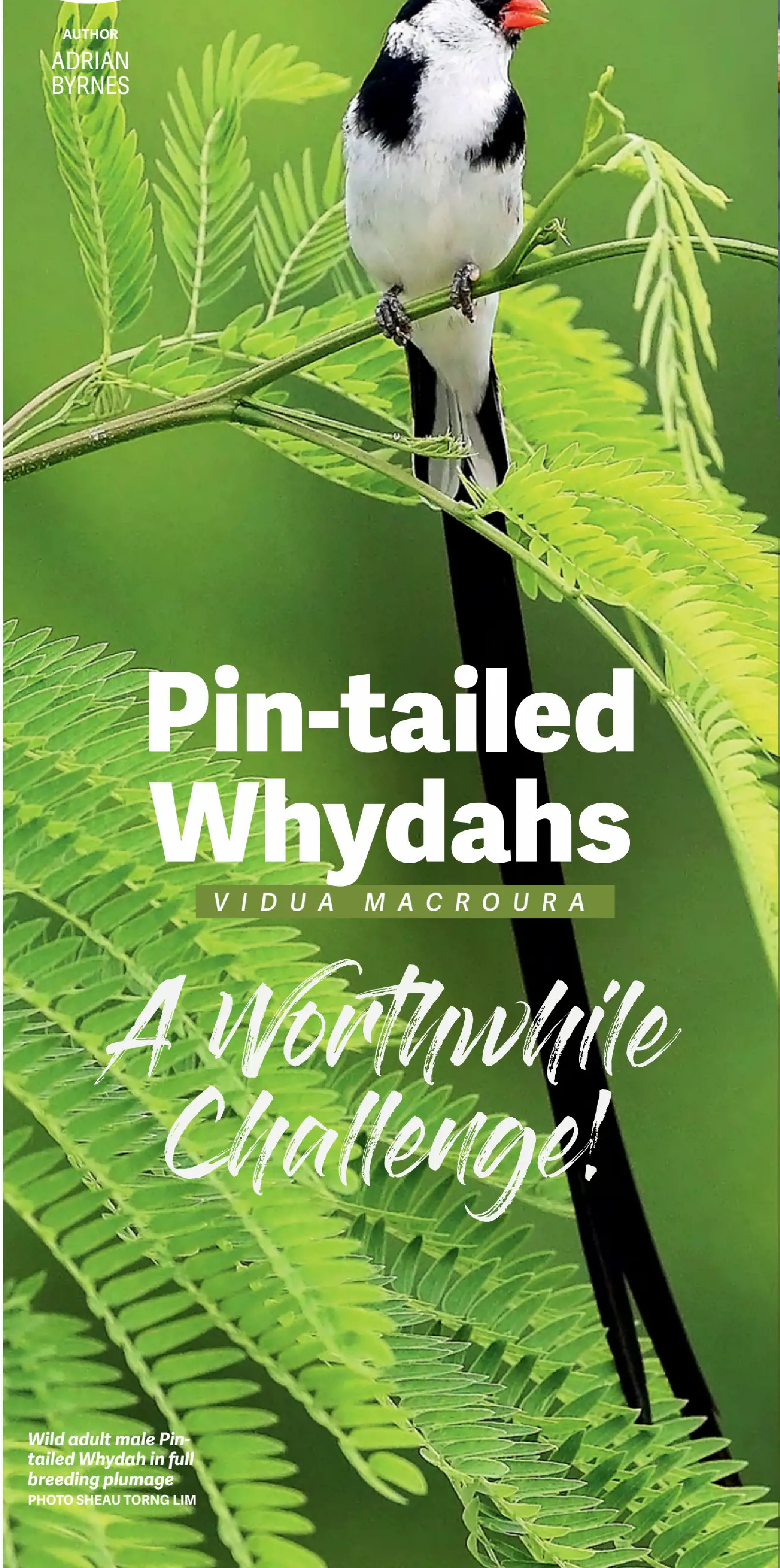
AUTHOR

ADRIAN BYRNES

Pin-tailed Whydahs

VIDUA MACROURA

A Worthwhile Challenge!



Wild adult male Pin-tailed Whydah in full breeding plumage
PHOTO SHEAU TORNG LIM

Adult male Pin-tailed Whydah in full breeding plumage
PHOTO SIMON DEGENHARD

INTRODUCTION

From the time I first laid eyes on this beautiful and intriguing species many years ago during an aviary tour with our local bird club, the Namoi Valley Avicultural Club, it was permanently etched on my want list. Fortunately, I have achieved success with them over the past four breeding seasons.

TIME FOR A NEW CHALLENGE

2019 was the year I decided it was time to try something a bit more challenging than the common finch species I'd kept in the past. While looking for these birds, I spent a great deal of time researching and talking to other breeders, learning from their experiences and getting a feel for what these birds need by understanding both the successes and failures others had faced.

At the 2019 Orange Bird Sale, I picked up my first pair of Pin-tails from the late David Holmes. We'd been in touch for a couple of months prior, basically waiting on DNA results to confirm that he had a pair ready for me. I ended up getting a 4-year-old male and a first-year female. The male was in full breeding plumage at the time, but not long after—around mid-April—he began moulting and returned to his off-season colours.

THE FIRST BREEDING SEASON AND MY SUCCESS SO FAR

In that first season, I managed to breed two Pin-tails, one male and one female. Unfortunately, mid-season, I lost my breeding male, which kicked off the hunt to find another one before the next breeding cycle. I ended up doing a 14-hour round trip to collect a breeding pair and a young male from a gentleman who was getting out of birds. At that point, I had a mature breeding male, two mature females, two young males, and one young female.

The following season, I ran the mature male with the two mature females and produced nine young. The plan at that stage was to set up three Pin-tail colonies the following year.

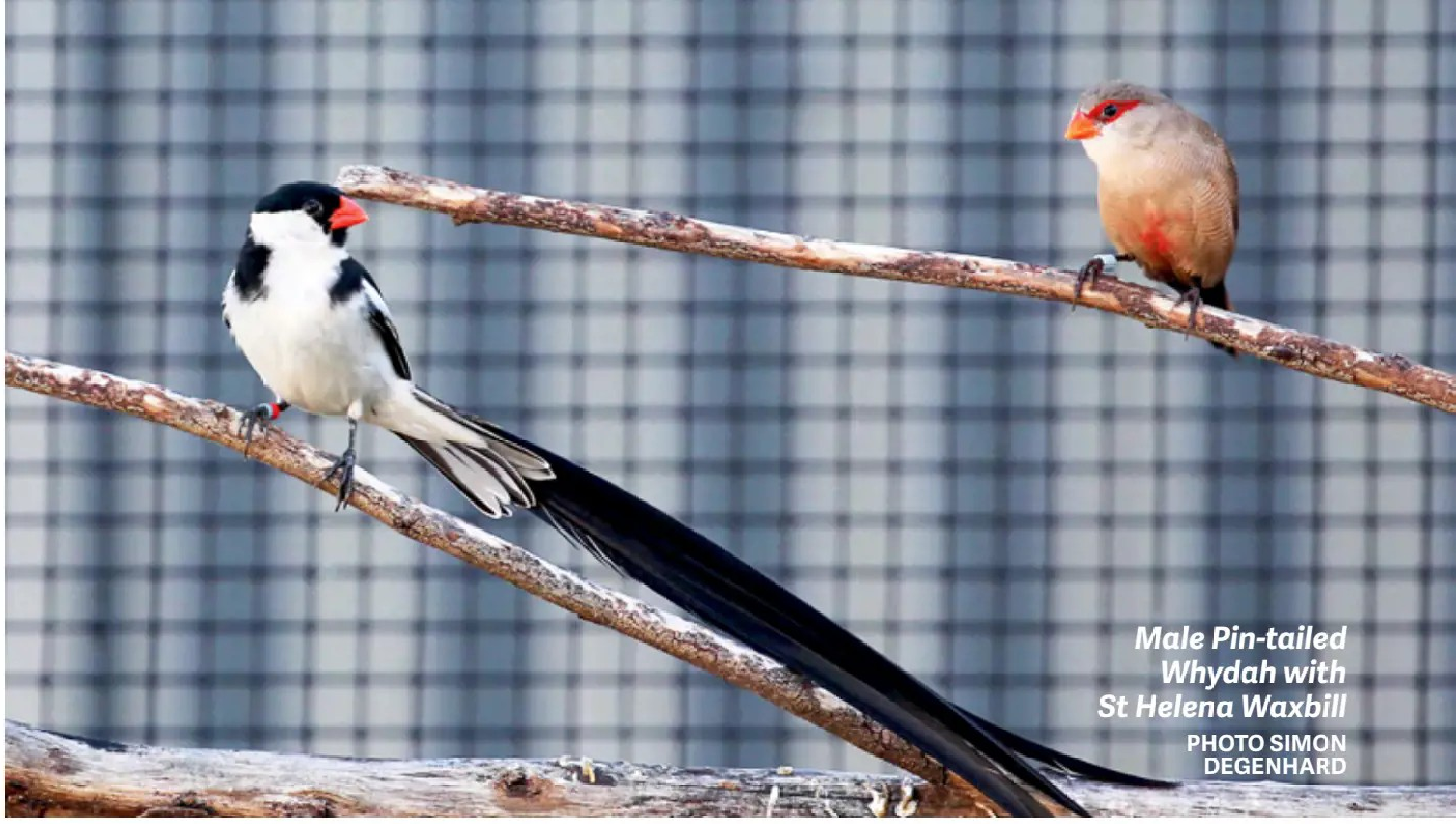
For the 2023/2024 breeding season, I set up—each in separate aviaries, of course—two single pairs and one trio of Pin-tails, alongside 40 pairs of St Helena Waxbills. This turned out to be my biggest and best season yet for the Pin-tails: I fledged 21, with 18 surviving, along with over 130 young St Helenas.

Over the past five seasons, I've fledged 49 Pin-tails and over 400 St Helenas.

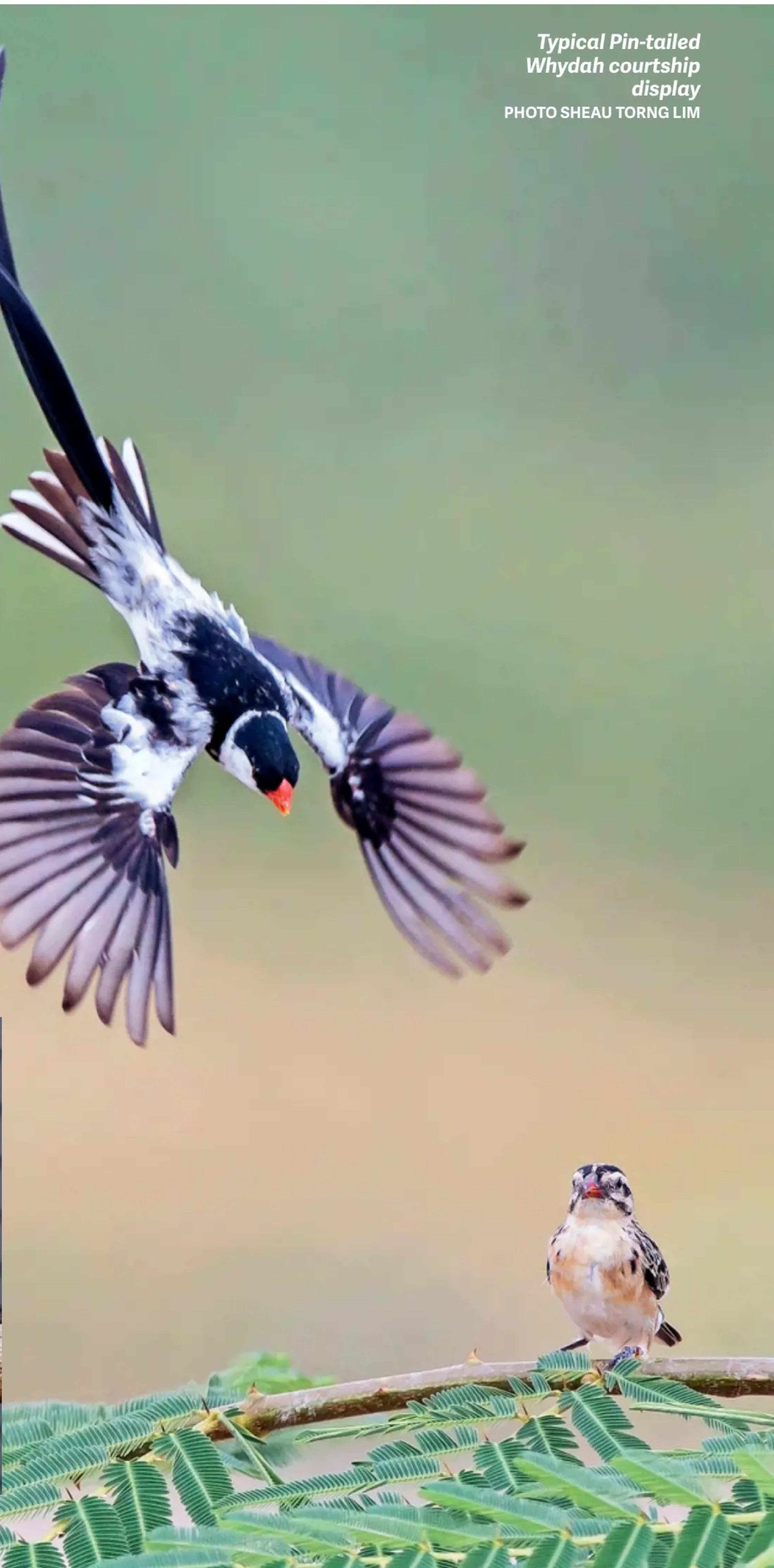
IN THE WILD

Pin-tailed Whydahs originate from sub-Saharan Africa, where they favour grasslands, scrublands, and savannahs. They are a long-lived finch species, with lifespans reaching up to 20 years. Pin-tailed Whydahs are brood parasites, meaning they rely on a host species to raise their young.

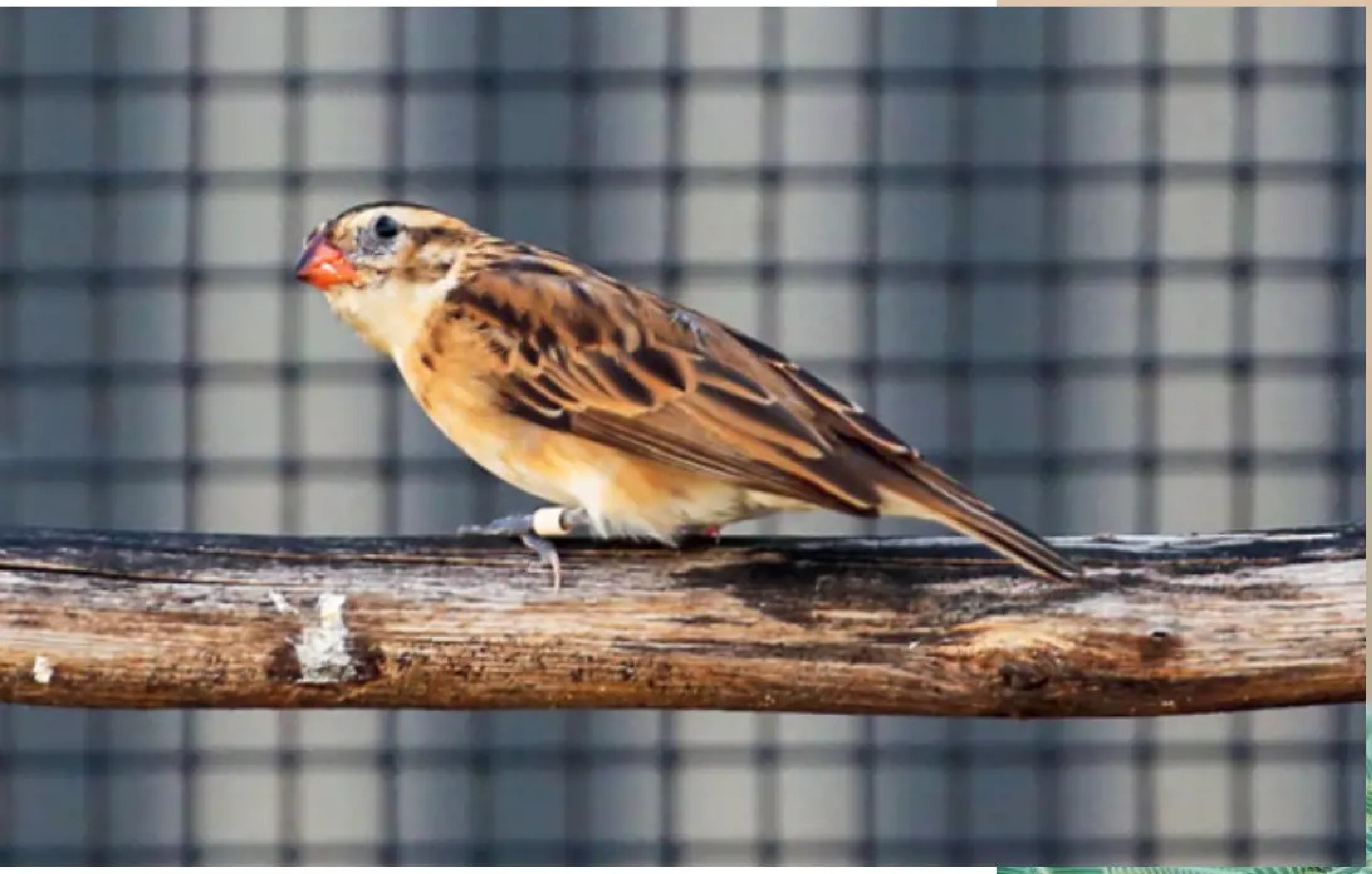
As it's been explained to me, during the breeding season, male Pin-tails establish territories roughly the size of a football field. Female Pin-tails move around in groups with St Helena Waxbills, flying in and out of the territories of various males until they find a suitable mate. Once mating occurs, the Pin-tail females follow St Helenas back to their nesting sites and lay their eggs in their nests. From that point on, the St Helenas take over and raise the young as their own.



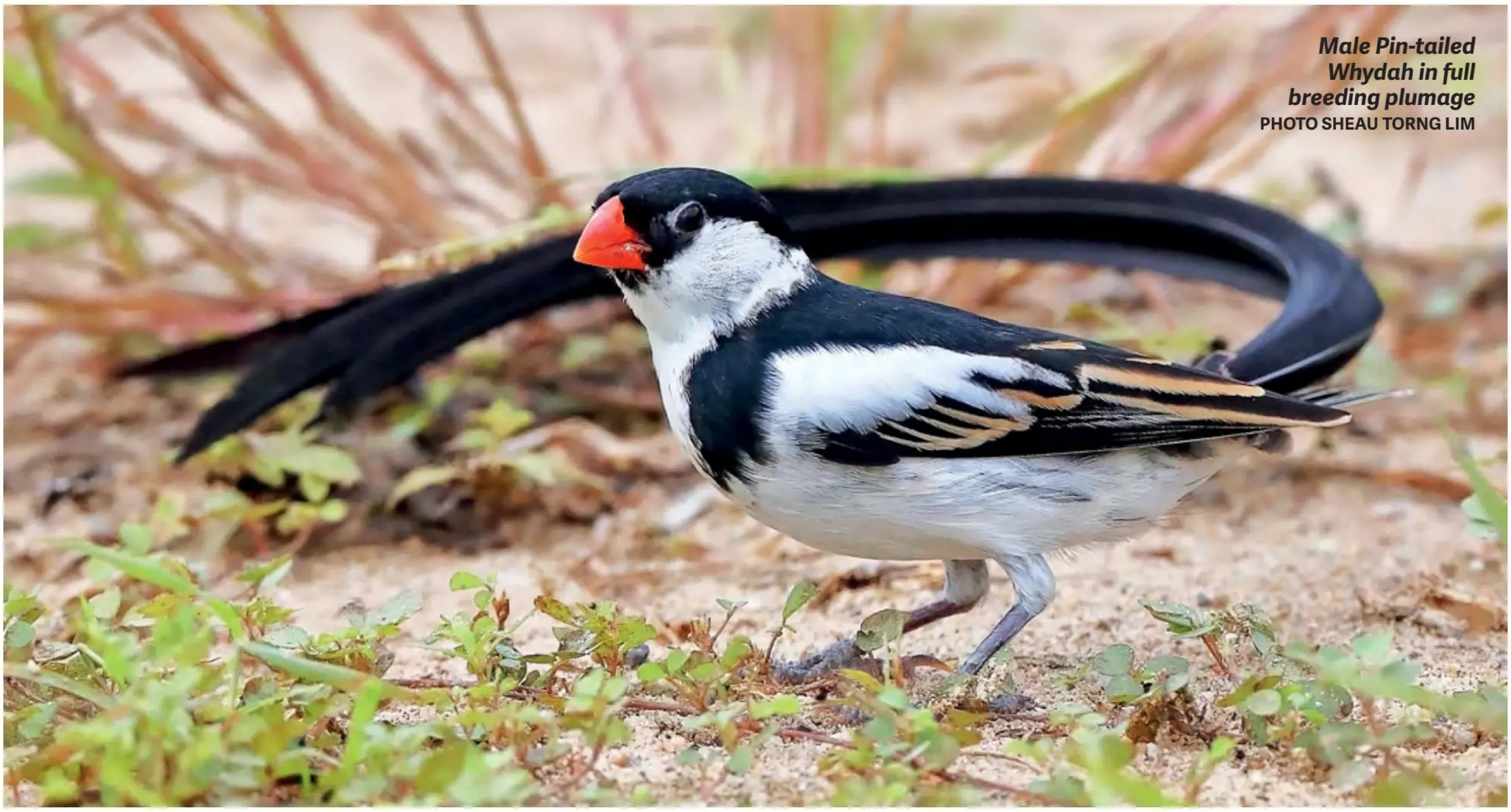
Male Pin-tailed Whydah with St Helena Waxbill
PHOTO SIMON DEGENHARD



Typical Pin-tailed Whydah courtship display
PHOTO SHEAU TORNG LIM



One of the Author's adult female Pin-tailed Whydahs, photographed at the end of the breeding season
PHOTO SIMON DEGENHARD



Male Pin-tailed Whydah in full breeding plumage
PHOTO SHEAU TORNG LIM

FEEDING PIN-TAILS

Their diet is simple—a good quality finch seed mix, fresh water, and some seeding grass heads. No live food is required, although they will occasionally eat the odd insect found in the aviary. At the end of the day, the care requirements for Pin-tailed Whydahs are basic; it's the host species you need to cater for.

REPLICATING THE NATURAL BREEDING PROCESS

In captivity, it can be a bit tricky to replicate the natural breeding process in aviaries, so things are done a little differently. I've spoken to several breeders over the years about the best way to go about it, and honestly, everyone seems to have their own method. This is what's worked for me: First and foremost, I believe larger aviaries are a must, mainly because of the large number of St Helenas needed.

The breeding season usually kicks off for me around mid-October, when the males begin their moult and start transitioning into their breeding plumage. Only from their second year onwards do males colour up, but first-year females are capable of breeding.

The males change from a brown, sparrow-like appearance to a striking black-and-white bird with a bright red beak and four long, pin-like tail feathers. As they age, those tail feathers tend to grow longer, with an average length of around 15cm. The females, on the other hand, don't change colour from their non-breeding plumage—only their beak colour shifts when they're ready to breed.

By November, the males are fully coloured, and their behaviour begins to change. They start showing signs of increased aggression, often chasing other birds in the aviary. At this point, males in breeding condition shouldn't be housed together, as things can get quite tense.

PREPARING FOR BREEDING

Preparation for the season starts months in advance to maximise the chances of getting as many nests out of the St Helenas as possible. I house all my St Helenas in holding aviaries during the off-season so that when the time comes, they're keen and ready to breed straight away.

There are a couple of ways to kick things off, but this is my current method, which I find works best for me. Around mid-November, the female Pin-tails' beaks change from bright red to almost completely black—this is the sign they're ready to go. At this stage, I release the male and female(s) into their breeding aviary, as the only inhabitants for at least two or three days, so they can get familiar with their surroundings. The males start chasing and displaying, but nothing happens just yet.

After this period, the St Helenas are introduced. I work on a ratio of roughly 10 pairs of St. Helenas for every female Pin-tail—that's just what suits me. I release males and females at the same time; some breeders prefer to release females first and males a day later, but I've found that it makes no difference.

Within the first day, the St Helenas are keen and ready—they start collecting nesting materials and searching for their chosen nesting sites. This activity excites the Pin-tail females, who begin responding to the males and their advances. Female Pin-tails seem to tease the males at first, making them display by flying off to a new location, forcing them to give chase and work hard to gain her attention.

During this time, the females also watch the nest-building of the St Helenas closely, as they want to be the first to lay their eggs in the nests. Normally, Pin-tail females will only lay one egg per St Helena nest. However, I've experienced a couple of seasons during which the St Helenas didn't all breed simultaneously, and the Pin-tails laid multiple times in the same nests. I've had up to three Pin-tails fledge from the same nest a couple of times. (Note: The Pin-tails don't remove any of the St Helenas' eggs if they're already in the nest.)

ST HELENAS BECOME WARY IF USED FOR TOO LONG

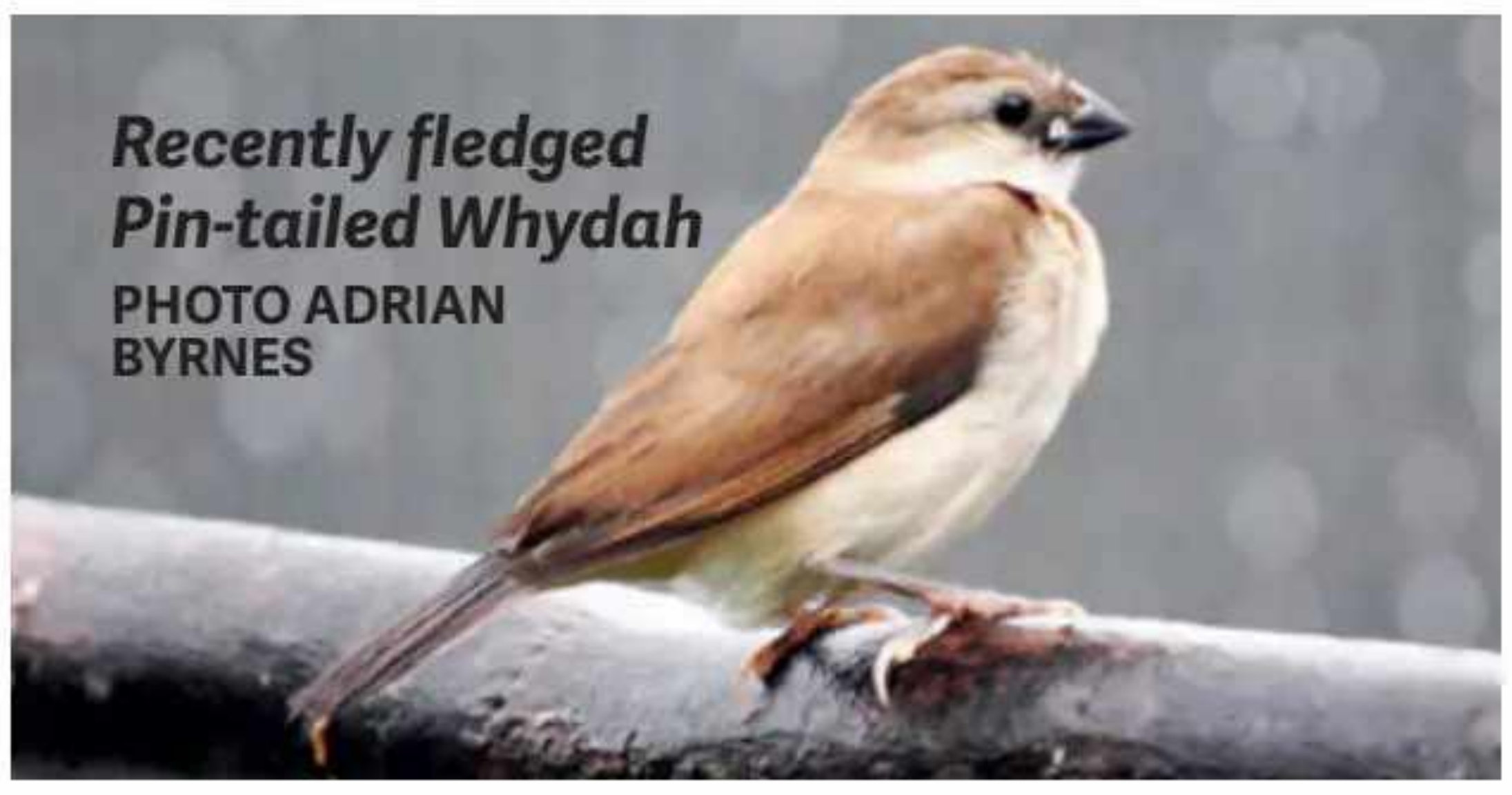
Ideally, St Helenas should only be used for a maximum of two seasons with Pin-tails, as they become wary of them and stop nesting. Because of this, I only use my St Helenas for one season, then move the breeders on and use the young birds for the following season.

The breeding window for me with pintails is roughly from mid-November to early April. By mid-April, the males drop their long tail feathers and lose interest in the chase. During the season, though, the males are relentless, chasing everything and anything. It's not so much physical contact as it is dive-bombing groups of St Helenas and chasing them to show dominance.

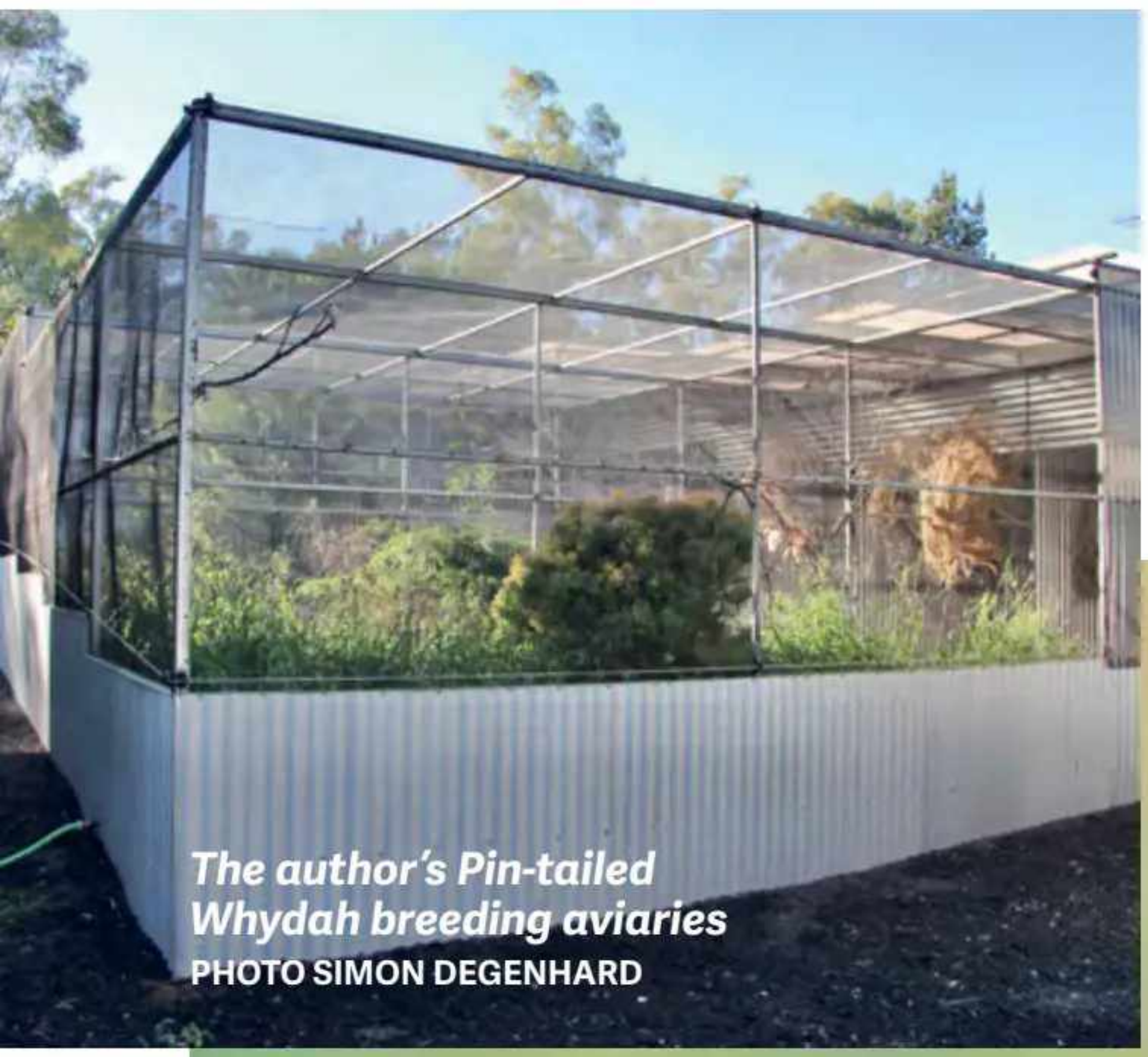
Because of this, I've found that once the young St Helenas and Pin-tails fledge, they

Inside view of one of the author's Pin-tailed Whydah breeding aviaries
PHOTO SIMON DEGENHARD

Recently fledged Pin-tailed Whydah
PHOTO ADRIAN BYRNES



Recently fledged Pin-tailed Whydah
PHOTO ADRIAN BYRNES



The author's Pin-tailed Whydah breeding aviaries
PHOTO SIMON DEGENHARD

need some ground cover. This allows the adult St Helenas to feed their young on the floor without being constantly harassed by the Pin-tail males. A heavily planted aviary is ideal, providing plenty of places for the birds to hide.

FOCUS ON BREEDING ST HELENAS

Something to keep in mind is that we're not really focusing on catering to the Pin-tails—we're working on breeding the St Helenas as prolifically as possible. So, we need to provide whatever they require for them to breed at their best. A good quality finch seed mix, plenty of seeding grass heads, along with mealworms as their main source of live food, will help keep them healthy. I have also fed termites and maggots in the past, which they similarly enjoy.

FLEDGING

When the young Pin-tails fledge, they're usually self-sufficient. But if they fledge a day or two earlier than they're supposed to and the St Helenas don't feed them, they may not make it. It's not always the case, but sometimes the St Helenas won't feed the Pin-tail chicks once they're out of the nest because the chicks look different and are slightly bigger than their own. At this point, I start scattering handfuls of red panic seed around the aviary floor. It's a softer millet and seems to be their preferred seed.

About a month after fledging, the young Pin-tails go through their first moult. I've been told there are ways to visually sex them at this stage, but so far, I haven't been able to tell for sure, so a DNA test is by far the best way to make sure I get it right.

WILL PIN-TAILS BREED UNDER ANOTHER HOST SPECIES?

Yes, they will breed under munias and Orange-breasted Waxbills, and possibly other species as well. I once saw a Pin-tail female enter a Pictorella nest, which resulted in them abandoning the nest altogether—so that's a concern. I've personally tried Orange-breasts with no luck. In my experience, the St Helenas are by far the best option as a host species. Not only are they the natural host for Pin-tails in the wild, but they're also the most prolific breeders. St Helenas will often fledge a nest and have a second clutch underway while still feeding young from the first. With such a short breeding window for Pin-tails—roughly four months—the quicker the turnover between nests, the better.

CLOSING REMARKS

There are many factors involved in breeding Pin-tails successfully. Timing is key—making sure both the Pin-tails and St Helenas are ready to breed at the same time. Fertility is another important factor. It's not as simple as putting a pair together and expecting success; both parts must align for it to work.

Pin-tailed Whydahs are certainly not a species for beginners to finch aviculture. However, for the more experienced finch breeder who is looking to add something a little different to their collection, Pin-tails are very hard to pass up and are certainly a worthwhile challenge! abk

Pin-tailed Whydahs—male and female during courtship
PHOTO BRETT MORRISON

ADVICE FOR

Parrot Breeders

THE BREEDING SEASON

The breeding season is underway at Loro Parque Fundación, marking one of the most exciting times in parrot care and conservation. This is the time for keepers to sharpen their instincts and aim to surpass the successes of the previous season. It's time to offer each pair the nest box they prefer, to motivate those that didn't succeed last year, and to watch with anticipation as newly formed pairs begin to show their potential.

Above all, it's a season to enjoy—the energy, the challenges, and the hope that comes with every clutch of eggs. Each moment offers the chance to contribute meaningfully to the preservation of these incredible species.

LEARNING NEVER TRULY ENDS

In parrot keeping, learning never truly ends. No matter how much experience we gain, there are always new surprises and challenges. That's why continuous training is so essential. Different species display different behaviours, each pair has its dynamics, and individual birds come with unique traits. On top of that, every breeding centre faces its specific circumstances.

Perhaps it's this constant variability—and the challenges it brings—that most captivates parrot enthusiasts, drawing them into a cycle of ever-renewing passion year after year.

PROS AND CONS OF DIFFERENT LEARNING OPPORTUNITIES

Today, social media and instant access to information on our phones have made learning seemingly easier than ever before. Yet, despite this convenience, we still face major setbacks—making mistakes and overlooking details that can, tragically, cost an animal its life. That's why personal experience, supported by reading both classic and modern literature, must be complemented by active participation in congresses, seminars, and discussions within breeding associations.

This remains the most effective way to stay up to date and make informed decisions about the daily care and management of parrots. Digital communication is a powerful tool—faster, more concise, and immediately accessible—but it also carries the risk of misinterpretation. A balanced approach, combining traditional learning with modern technology, is key to responsible and successful parrot keeping.

Short written comments and visual content on social media can be a valuable resource for experienced breeders. However, for newcomers to the hobby, they can pose certain risks. Without a solid foundation of experience, beginners are exposed to a wide range of opinions, many of which may not be grounded in reliable knowledge. This can lead to confusion and the temptation to make changes to their animals' care that may be inappropriate or even harmful.

The truth is, there's a significant risk in trying to replicate everything you hear from another breeder, especially when it comes to vitamin supplements or specific management practices that seem to be working well for them. Any changes made should be approached with care, applied systematically, and given enough time to observe the specific results in each case. Rigour and patience are essential to avoid unintended consequences.

In any aviculture association, it's often those who have retired from their professional careers who achieve the most consistent results. They are the voice of experience—individuals who have learned through years of both success and failure. They have developed a keen ability to recognise what works and what doesn't. At the same time, they remain open to new ideas, applying them with the rigour and caution that only experience can teach.

HANS-JÜRGEN GEIL

Since September 2024, breeder Hans-Jürgen Geil has been generously sharing his lifelong expertise in parrot management with us. His seasoned perspective is invaluable, providing us with additional options and insights to adjust our management practices whenever necessary.

The following is a recent statement made by Hans-Jürgen to a German reporter:

"To put it bluntly, this is the best dream occupation a parrot lover could ever imagine. I am filled with immense gratitude to support a team of wonderful caretakers, all of whom perform their tasks with enthusiasm, dedication, and love. Helping to care for the largest parrot reserve in the world is truly unique, and the Foundation's commitment to animal welfare fills me with pride and admiration.

I must thank Mr. Kiessling for giving me the opportunity to experience the best possible chapter of my life, where we are all united by our love for feathered creatures and the joy of witnessing the natural splendour of animals that can fly."

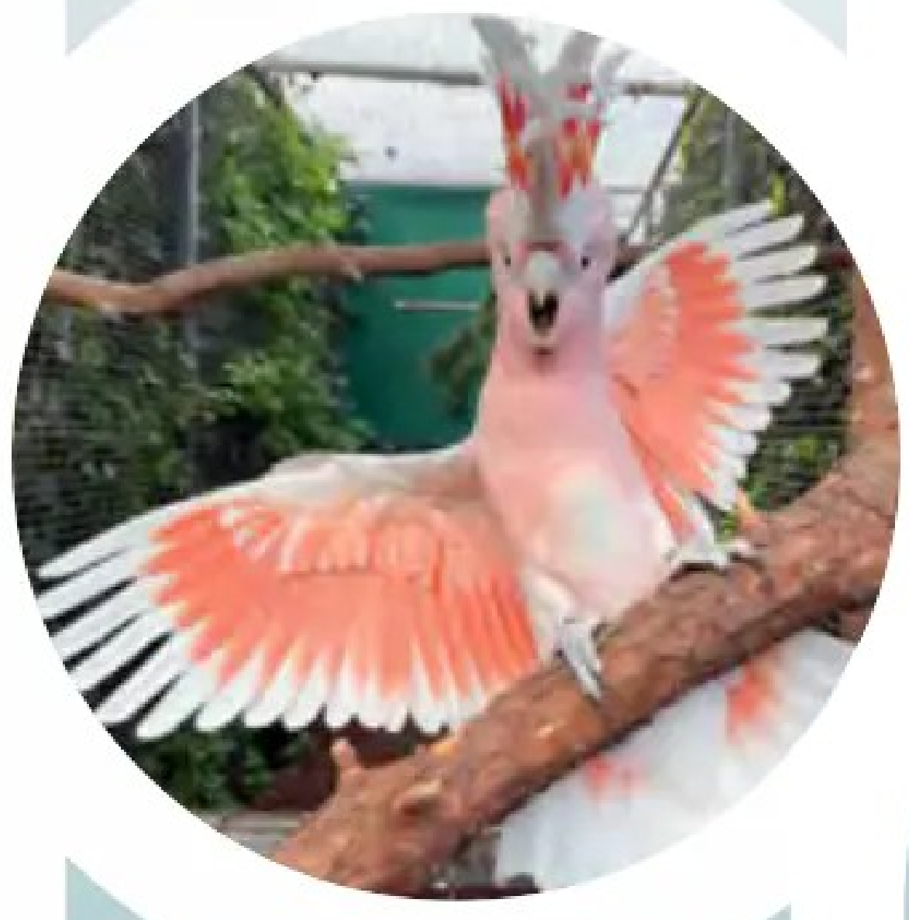
—Hans-Jürgen Geil

THE PRIVILEGE OF WORKING WITH RENOWNED EXPERTS

At Loro Parque Fundación, we have had the privilege of working alongside many world-renowned parrot experts, each bringing their unique perspectives and approaches. Their immense contributions to global aviculture and conservation have been invaluable. Thanks to their expertise, we have successfully established several little-known species under human care, and their management protocols have been shared with hobbyists worldwide through congresses and publications.

From all of us at Loro Parque Fundación, we wish you a successful and fulfilling breeding season. abk

Biak Black-capped Lorry L. l. cyanauchen at LPF
PHOTO LPF



Pink Cockatoo at LPF
PHOTO RAFAEL ZAMORA PADRÓN LPF

AUTHOR
RAFAEL ZAMORA PADRÓN
Scientific Director
Loro Parque Fundación

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Hans-Jürgen Geil (right) with Rafael Zamora Padrón at LPF
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AUTHOR & PHOTOS
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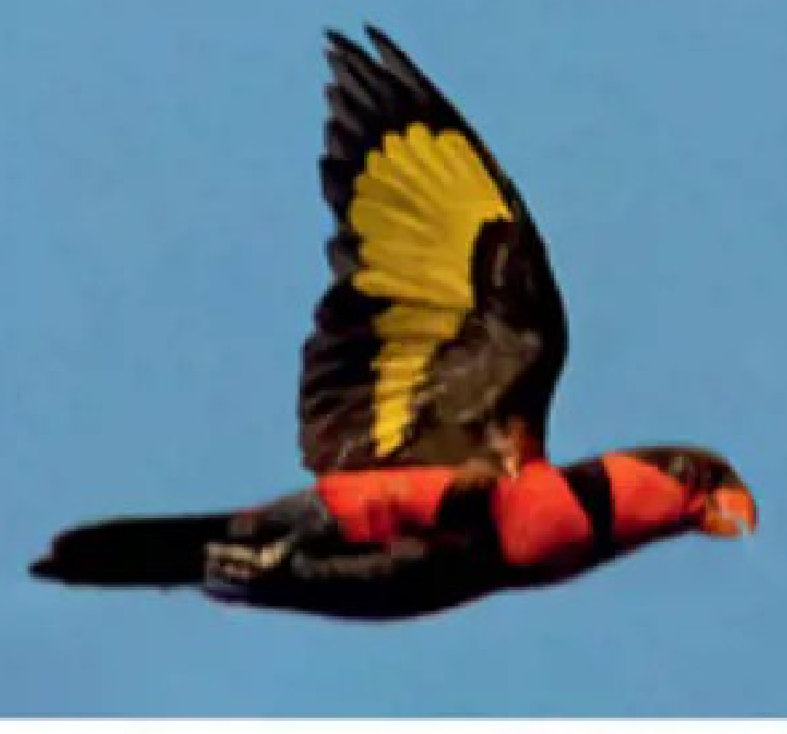
ODEKERKEN

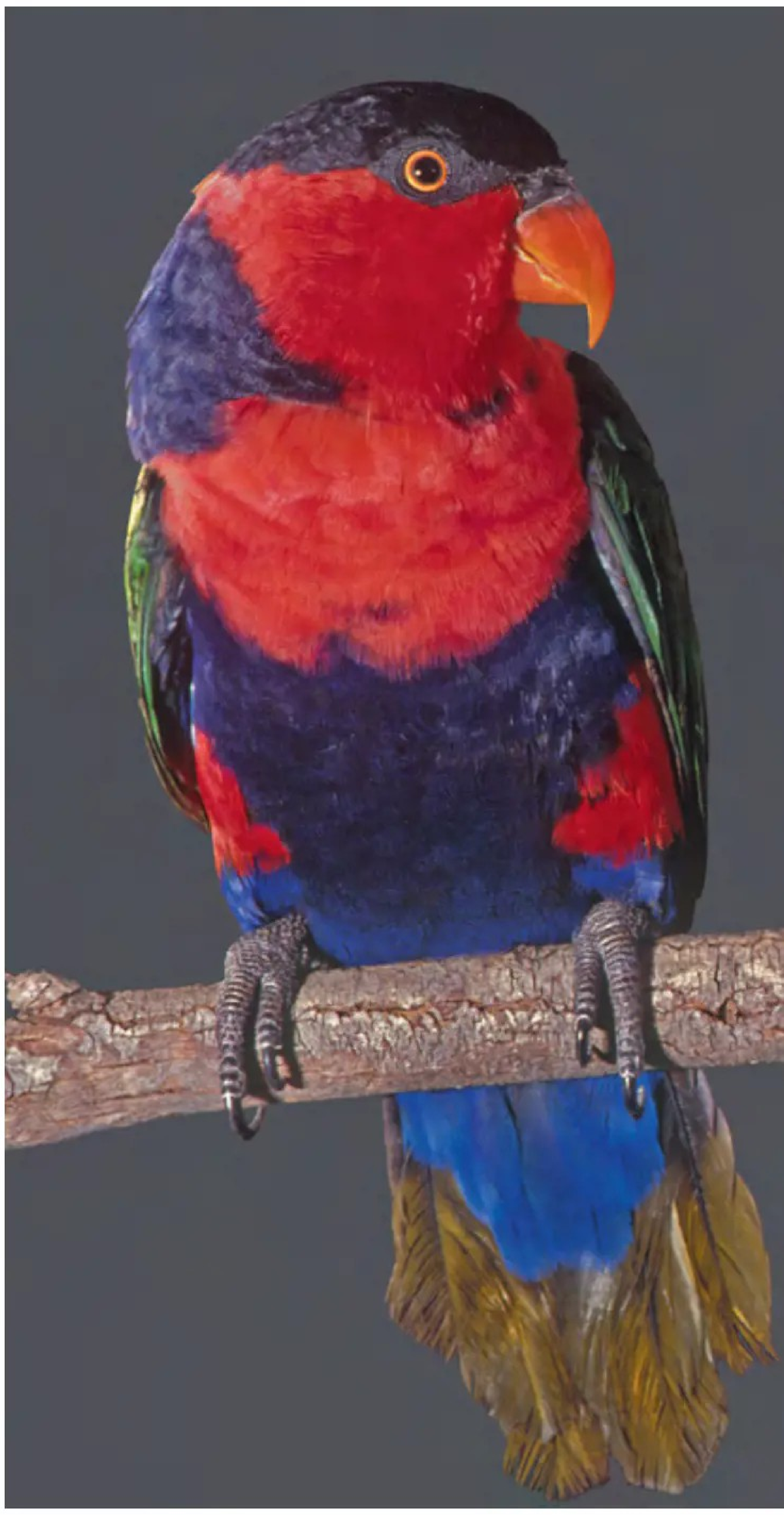
The Black-capped Lory

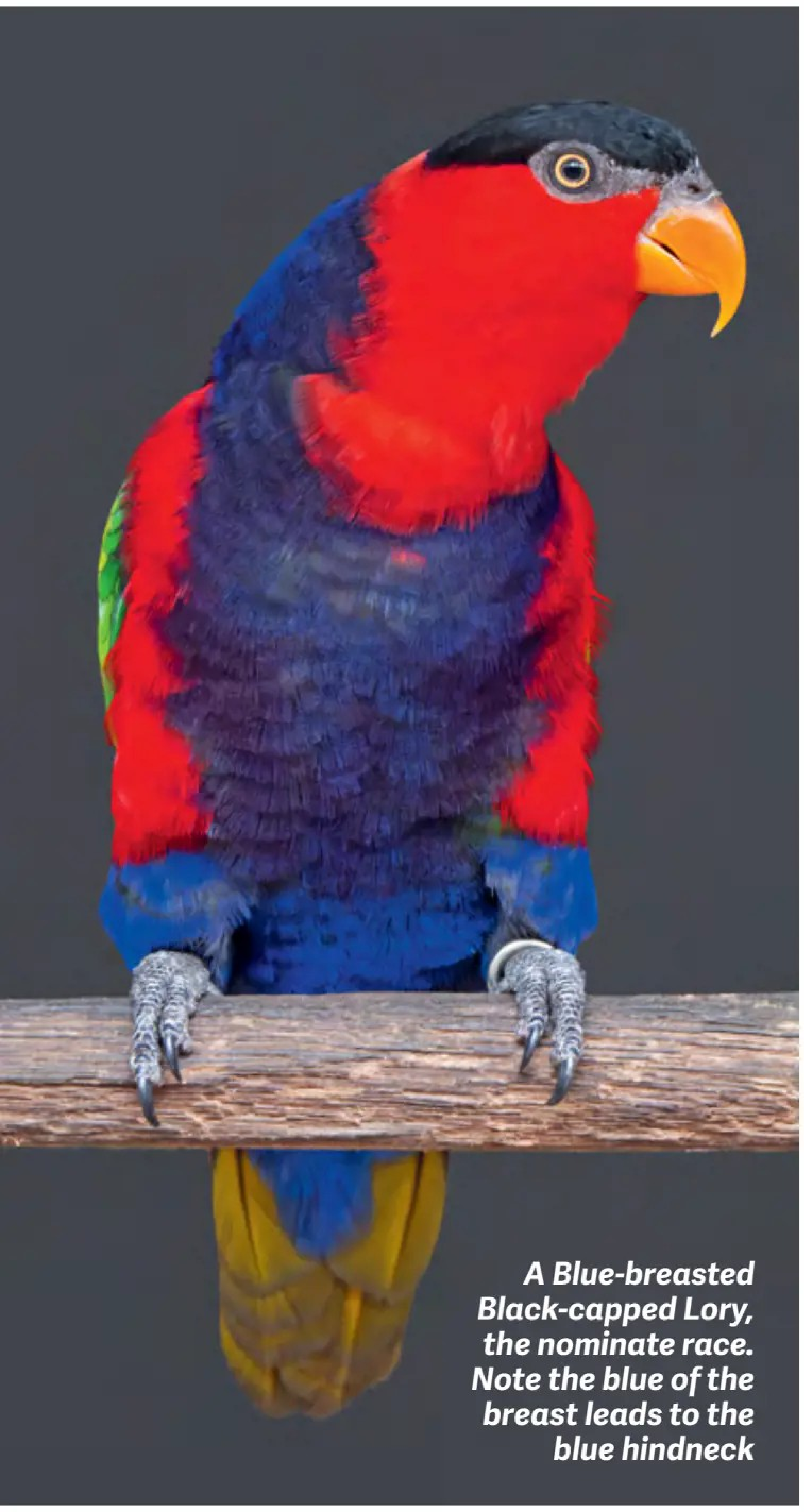
LORIUS LORY

Beautiful Entertainers!



A pair oaf the salvadori subspecies flying to their roost, over the Karawari River





A Blue-breasted Black-capped Lory, the nominate race. Note the blue of the breast leads to the blue hindneck

INTRODUCTION

This glorious lory is found throughout much of New Guinea and on some adjacent islands, where it favours lowland forests. The species is divided into seven subspecies, including the nominate.

The nominate is *Lorius lory lory* and is widely known as the Blue-breasted Black-cap in aviculture. It is distinguished by a dark purplish-blue nape, mantle, and belly that merge to cover most of the body, and it inhabits the West Papuan islands and the Bird's Head Peninsula areas.

The first subspecies is *L.l. erythrothorax*, often referred to as the Red-breasted Black-cap in aviculture, to distinguish it from the nominate. *Erythrothorax* ranges from Cenderawasih Bay (formerly Geelvink Bay) across southern New Guinea and around eastern Papua New Guinea to the Huon Peninsula near Lae. Unlike the nominate form, the blue on the belly of *erythrothorax* does not extend to the hind neck.

The subspecies *L.l. somu* is found between the Fly River and the Purari River. Interestingly, this form lacks the blue nape, despite the absence of any significant topographical barrier separating it from *erythrothorax*. It's important to note that these earlier forms—*erythrothorax* and *somu*—share the trait of having red underwing coverts.

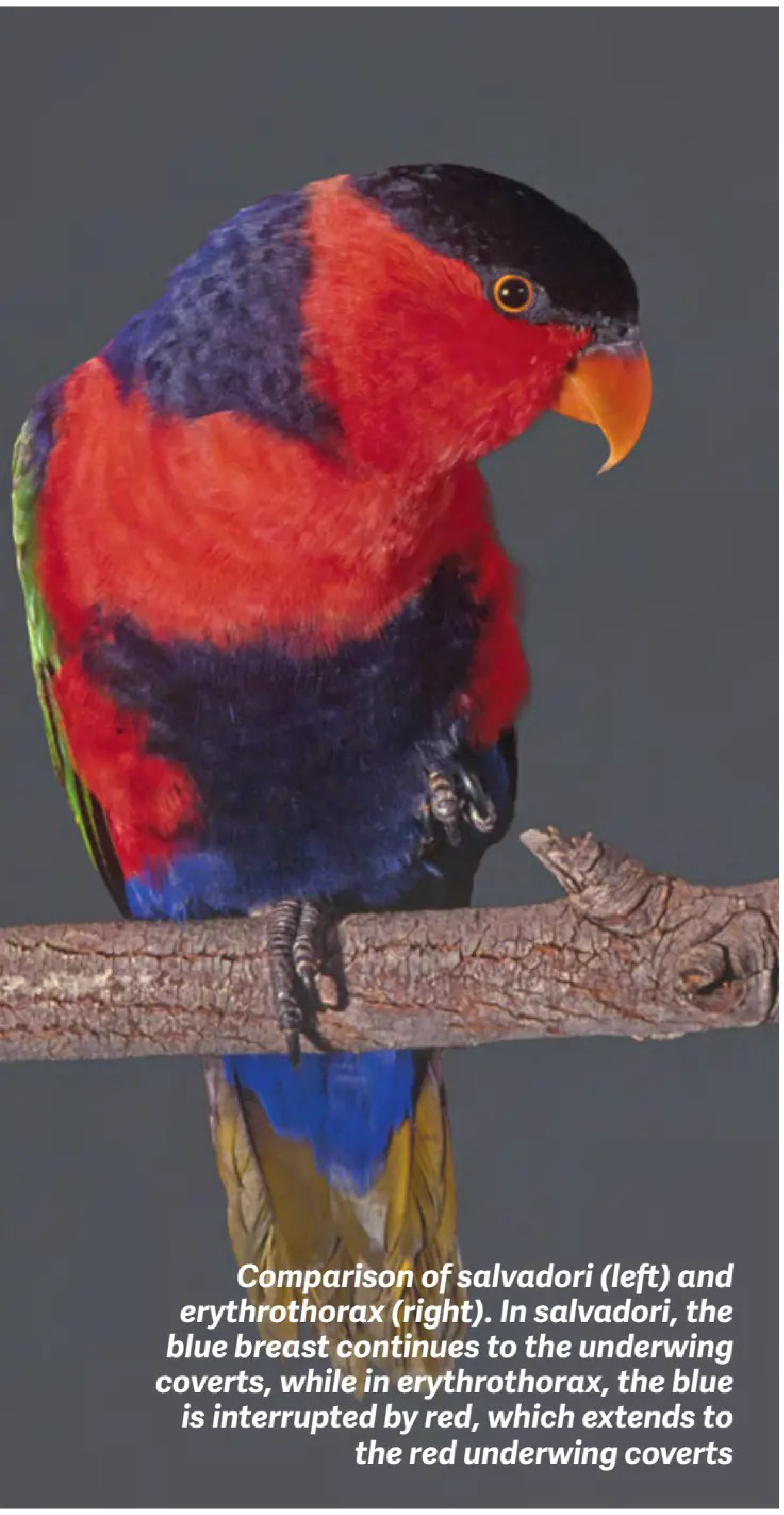
In contrast, the next group of subspecies is characterised by blue underwing coverts.

L.l. salvadori inhabits the northeast, from Astrolabe Bay westward to the Aitape region. It is further distinguished from the previously mentioned forms by the very dark, almost black, blue on the abdomen, especially toward the tail. This dark blue joins with the underwing coverts, forming a band that interrupts the red on the sides of the breast near the neck.

The subspecies *L.l. viridicrissalis* is found from the Jayapura region to the Mamberamo River. There are no major topographical features that would fragment the lowland forest in this area, so it is likely also present on the western side of the river. I have never personally observed this form. The region is sparsely populated compared to other parts of Papua under Indonesian governance, which likely limits human impact and trapping pressure. This form is said to have a blackish-blue hind neck and underwing coverts that are more black than blue.

We then move to the islands of Cenderawasih Bay (formerly Geelvink Bay), where the subspecies *L.l. jobiensis* is found on Jobi (Yapen) Island. Its most distinctive feature is a lighter, rose-coloured breast.

Finally, *L.l. cyanuchen* occurs on Biak Island and is under threat due to trapping for the pet trade. The most noticeable difference in this subspecies is the absence of red on the nape—the blue of the hind neck joins directly with the black cap.



Comparison of salvadori (left) and erythrothorax (right). In salvadori, the blue breast continues to the underwing coverts, while in erythrothorax, the blue is interrupted by red, which extends to the red underwing coverts

A LENGTHY BUT IMPORTANT INTRODUCTION

This may have been a rather lengthy discussion on the various races of the Black-capped Lory, but there is good reason for it: most aviculturists around the world remain unaware of these distinct subspecies. As a result, hybridisation is unfortunately common. I frequently come across collections where two different subspecies—most often a Blue-breasted paired with a Red-breasted—are being bred together. This should be avoided at all costs.

It is increasingly difficult to ensure that one is obtaining a pure specimen, making it even more important for aviculturists to take responsibility. Please make every effort to breed only with pure birds. We must ensure that, should any subspecies face extinction, there remains a viable population of genetically pure individuals that could potentially be reintroduced into restored habitats.

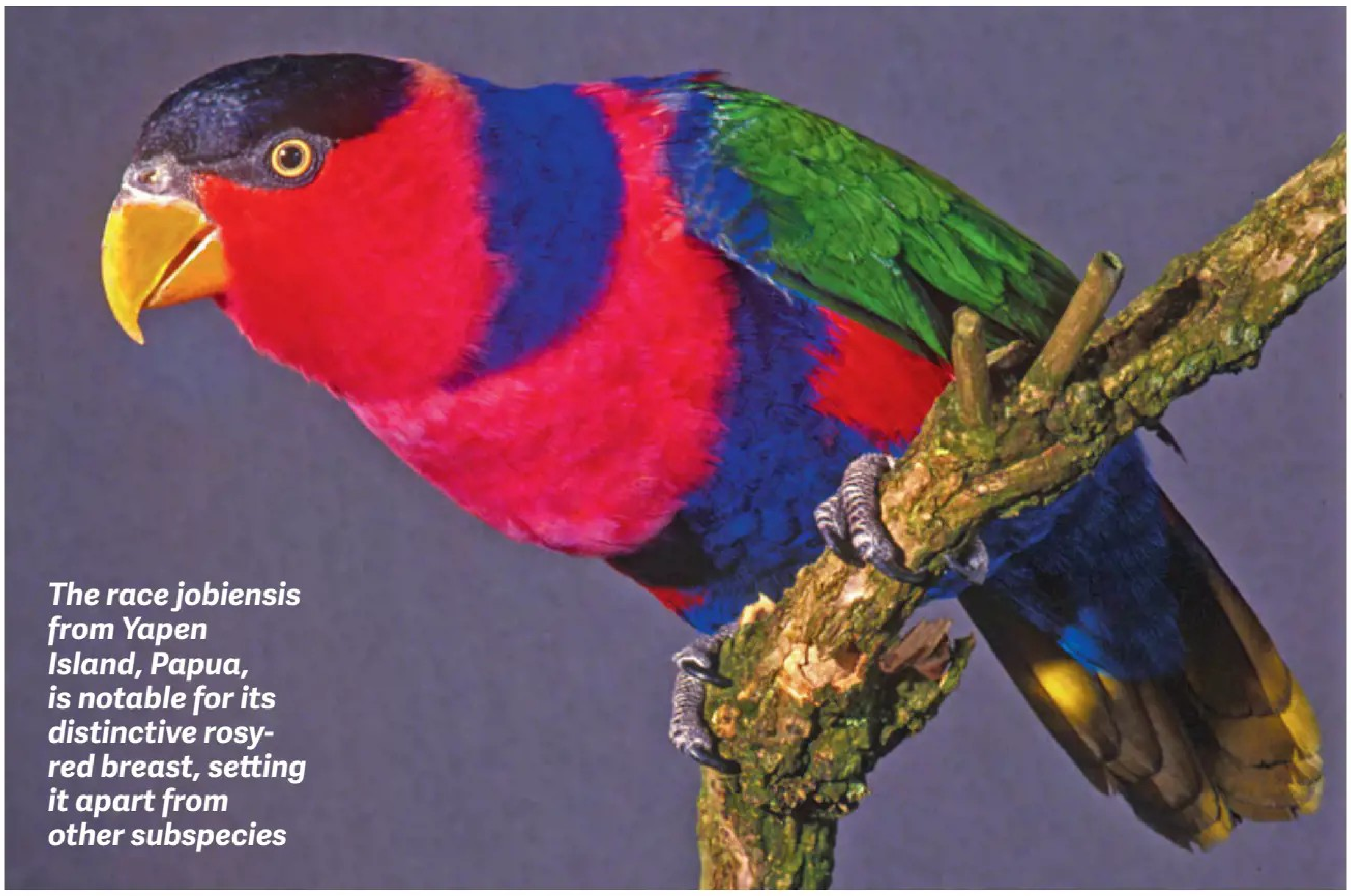
While most subspecies are currently classified as 'least concern', *L.l. cyanuchen* is genuinely under threat. These large lories are highly prized as pets by local communities, placing added pressure on wild populations.

WILD HABITS

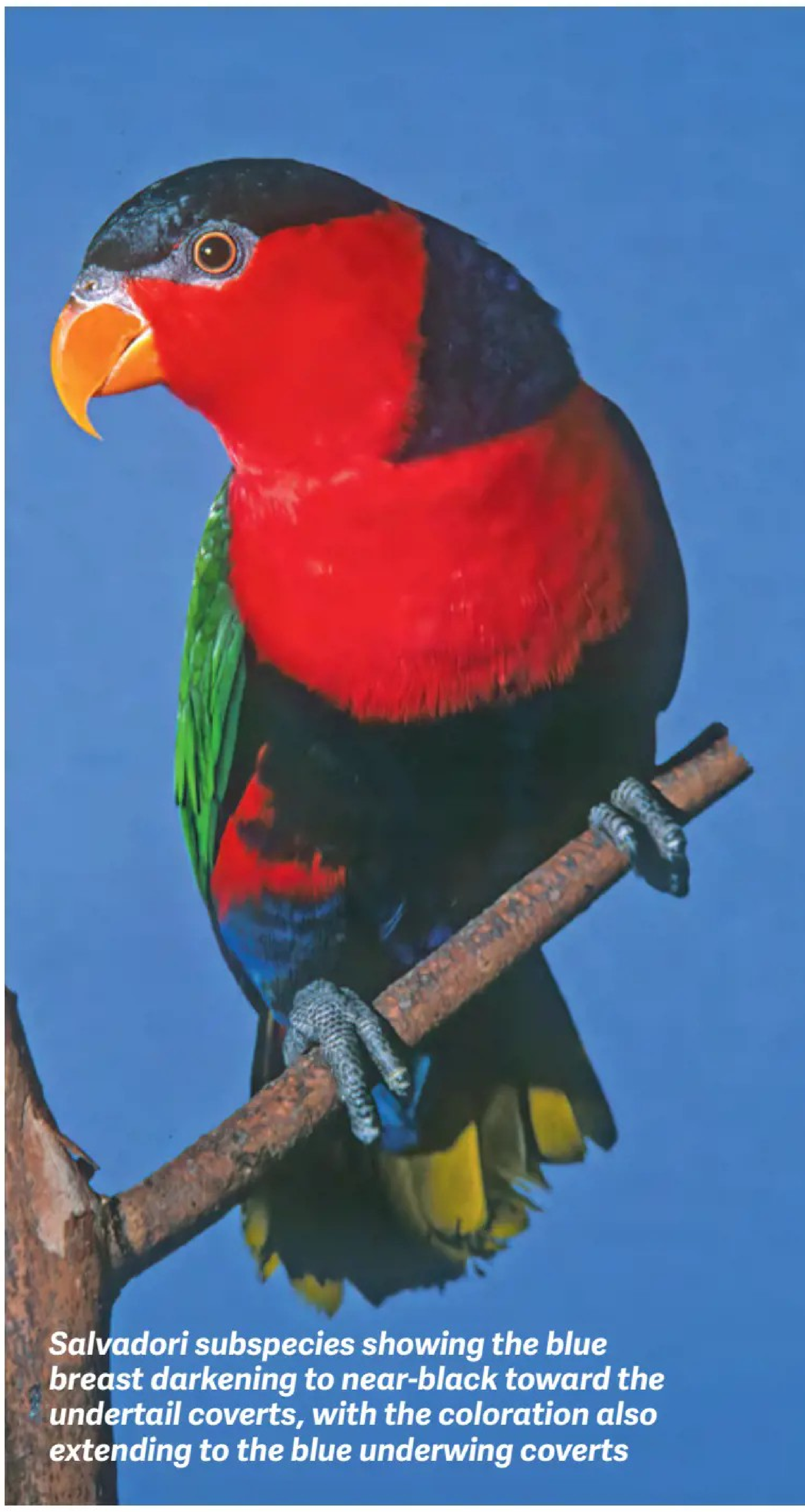
Black-capped Lories are generally found in pairs, accompanied by their offspring from the current breeding season. They are often observed in small flocks that form around flowering trees in productive feeding areas. These birds appear to maintain strong pair bonds into adulthood and will defend these relationships through displays of aggression. While typically low-key, such disputes can occasionally escalate, especially around prized resources like food or nest hollows. Fortunately, these confrontations are usually little more than squabbles and rarely result in injury.

In these communal gatherings at feeding and roosting sites, juvenile birds have the opportunity to interact with other young lories. This likely facilitates pair formation, particularly once they become independent from their parents. I speculate that such pair bonding might occur in the lead-up to the next breeding season, though I have no direct evidence to confirm this.

During field trips in New Guinea, I've observed that Rainbow Lorikeets *Trichoglossus* spp. and Dusky Lories, which often share the same habitats, tend to form larger flocks than the Black-capped Lory. On afternoon boat cruises along the Karawari River in Papua New Guinea, near the well-known Karawari Lodge, I frequently observed all three species returning to roost. The two smaller species were consistently more numerous and tended to travel in larger groups compared to the Black-capped Lories.



The race jobiensis from Yapen Island, Papua, is notable for its distinctive rosy-red breast, setting it apart from other subspecies

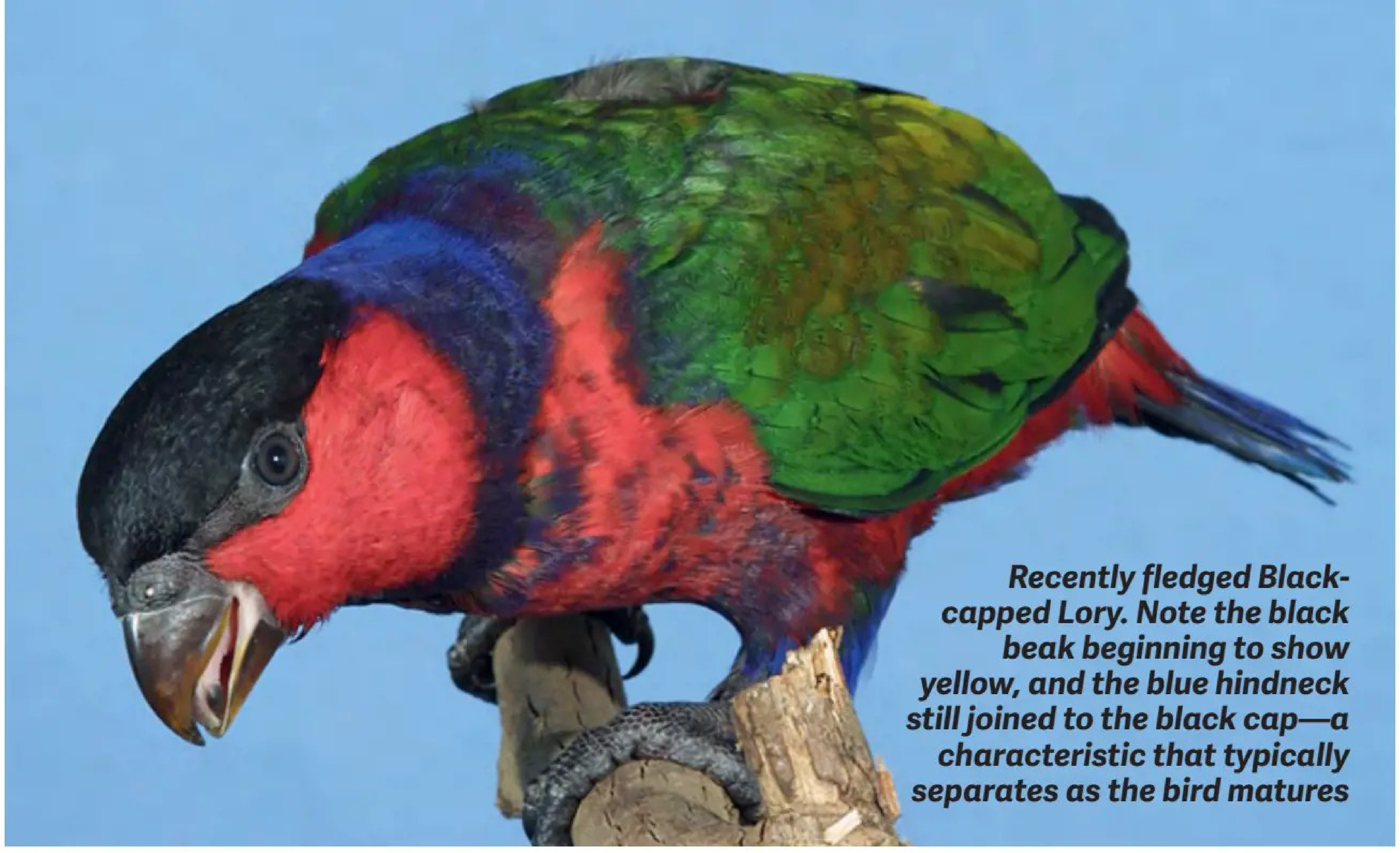


Salvadori subspecies showing the blue breast darkening to near-black toward the undertail coverts, with the coloration also extending to the blue underwing coverts

All lories and lorikeets are heavily reliant on flowering trees for their diet, which includes nectar, pollen, fruit, and protein from insects or larvae. They will also consume some seeds—*Casuarina* seeds, being small and accessible, are a common choice. However, the presence of seed in their diet should not be taken as evidence that they can subsist on it alone.

Sago and coconut palms are often hives of activity for nectar-feeding birds. Among them, members of the subfamily *Loriinae* are especially conspicuous, feeding noisily among the blossoms. Social interactions within flocks tend to be centred around bonded pairs and their offspring. Birds often perch together and engage in mutual preening, though minor squabbles between different pairs can occasionally disrupt the gathering. These social behaviours are typically observed during the hotter parts of the day, when birds rest in the shade, and at communal roosts, which can become quite noisy at night.

Flocking behaviour offers significant safety advantages. A group provides many eyes to watch for predators, increasing the chance of early detection. When a threat, such as a raptor, approaches, the lories will suddenly burst from the tree in a screeching explosion of colour and noise. This chaotic, erratic flight serves to confuse the predator, reducing its chances of a successful hunt.



Recently fledged Black-capped Lory. Note the black beak beginning to show yellow, and the blue hindneck still joined to the black cap—a characteristic that typically separates as the bird matures

BREEDING IN THE WILD

Breeding in these warm to hot tropical climates likely occurs throughout the year, depending largely on food availability. However, during the rainy season, breeding may be limited as tree hollows—essential for nesting—can become flooded. Black-capped Lories, like other Loriinae, use these tree hollows as safe havens for raising their young.

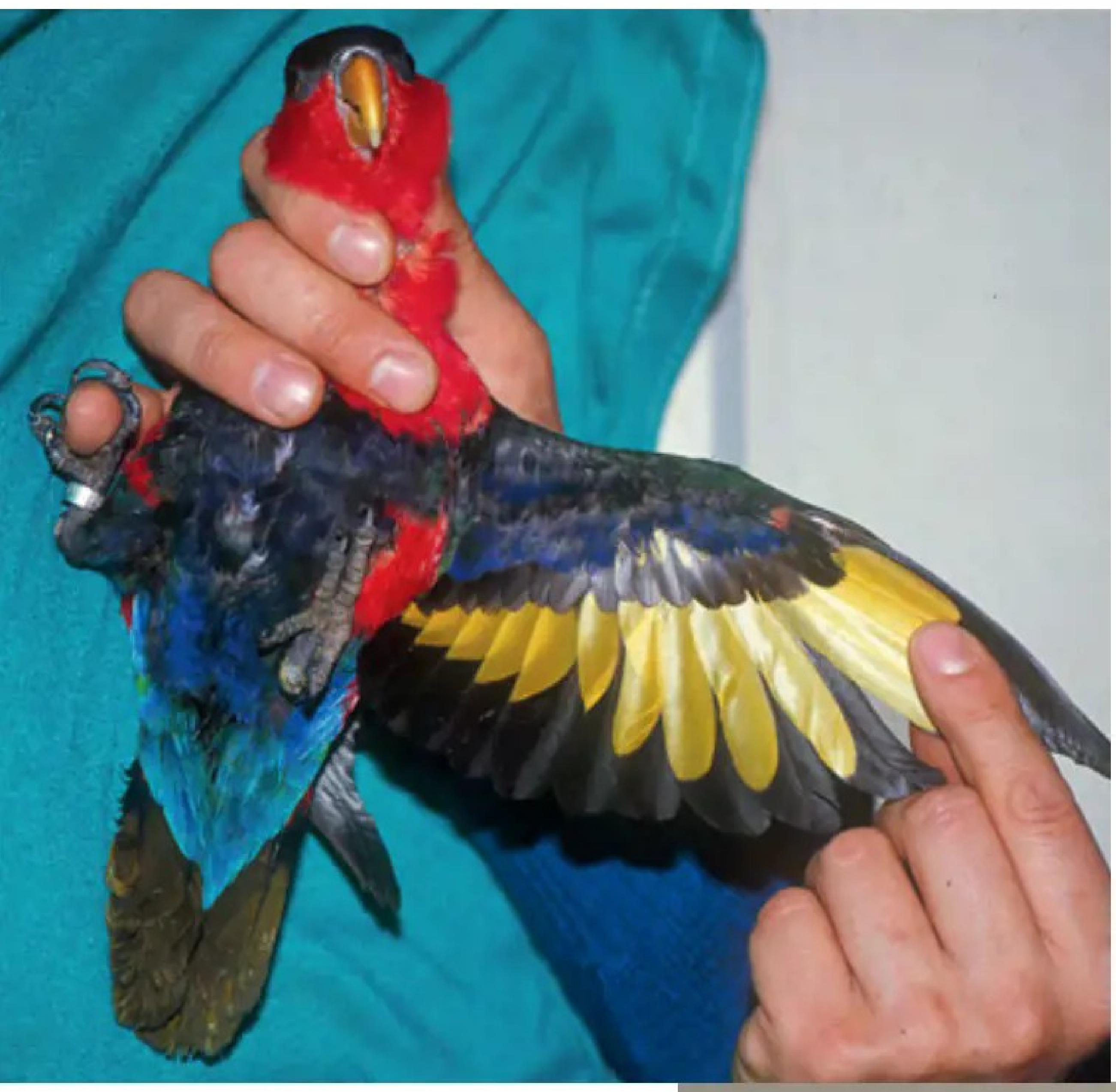
From my observations of Australian *Loriinae*, suitable nesting hollows can be reused in successive years and may even be occupied by the same pair throughout their breeding lives. Outside of the breeding season, pairs often visit their nests to refurbish the hollow. I have seen Musk and Little Lorikeets actively maintain their nests by removing dead leaves and accumulated debris from the open nest cavity.

Some of these nests are also sought by arboreal termites, making the birds' maintenance efforts crucial to keep the nest ready for the upcoming breeding season. John Courtney of Inverell, New South Wales, has witnessed this behaviour for over 40 years, and I have observed it myself for the past 15 years.

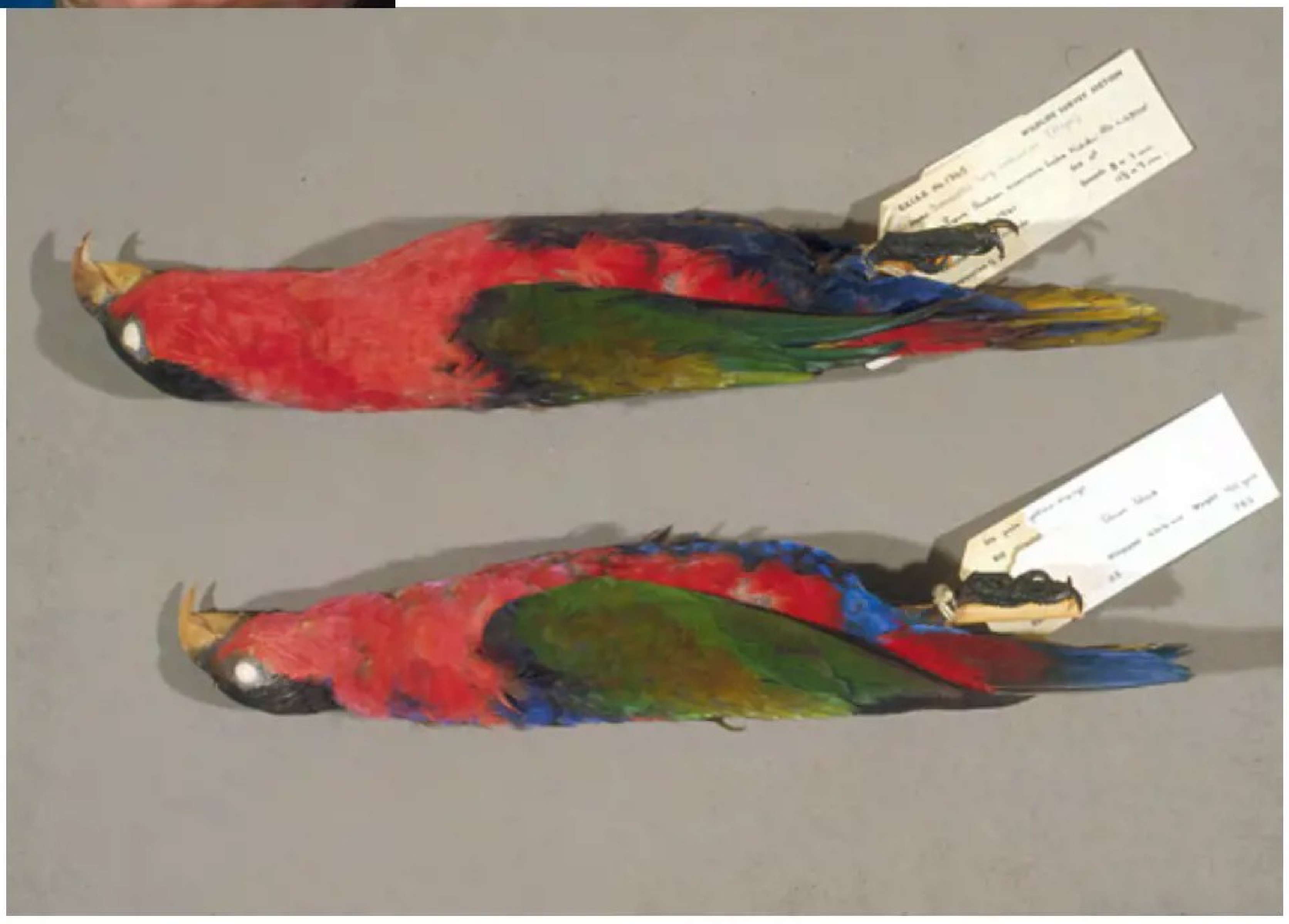
While it is impossible to state categorically that all Loriinae behave this way, there is no evidence to suggest otherwise. As for the Black-capped Lory, my knowledge is limited to occasional short visits to their habitat, so some of this remains speculative.

A typical clutch consists of two eggs, which are incubated for approximately 28 days. The young fledge at around three months of age. Nestlings have a distinctive black beak with a greyish-white, soft edge on the lower mandible. This area is sensitive to touch—a feature I noticed when hand-feeding a chick. I believe this colouration helps parent birds locate their chicks in the dark nest, and that gentle stimulation of this sensitive patch triggers a feeding response. This greyish-white area soon changes colour once the chick leaves the nest.

Juvenile plumage closely resembles that of adults but is less defined. The blue on the breast is paler, and the blue patch on the nape often touches the black cap initially, but these colours usually separate as the bird matures. However, this separation does not occur in the subspecies *L.l. cyanuchen*, where the blue and black remain joined in adulthood.



A captive example of the salvadori subspecies in Wewak, Papua New Guinea. Note the blue underwing coverts



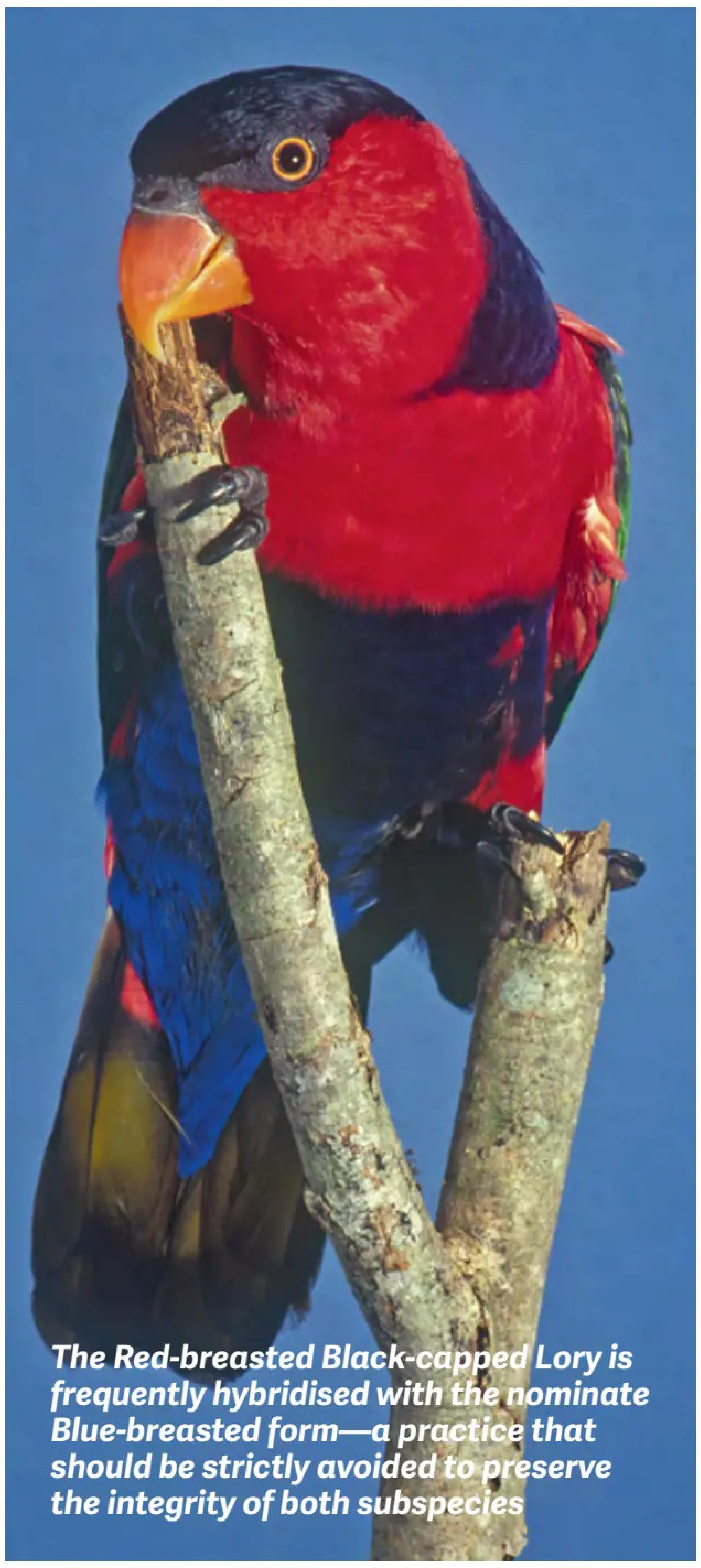
Skins of the somu subspecies, note the lack of the blue hindneck

BLACK-CAPS IN AVICULTURE

One of my biggest worries is that many *Loriinae* species will disappear from captivity, not just in Australia, but worldwide. There are several reasons for this. Our lifestyles have changed dramatically; the spacious quarter-acre blocks where hobbyists could easily keep aviaries in their backyards have largely vanished. Today, many of us live in cramped housing developments where having a roofline that doesn't touch a neighbour's is considered a luxury. With so little suburban land available, hobbies like birdkeeping have become increasingly difficult. And if you want your children to play outside, you often must take them to a nearby park.

On top of these challenges, very few young people today show interest in aviculture; many prefer video games instead. Financial pressures also weigh heavily, keeping birds has become costly in a world where political instability and economic uncertainty seem to be the norm. Some aviculturists prioritise making money over the long-term welfare of their birds, often neglecting the importance of maintaining healthy, sustainable captive populations.

If this continues, we may find ourselves asking, "What happened to that species?" and wishing it were still available. The good news is that, with advances in husbandry and diet, *Loriinae* are now not particularly difficult to keep. Yet, some will never consider them, preferring seed-eating parrots instead.



The Red-breasted Black-capped Lory is frequently hybridised with the nominate Blue-breasted form—a practice that should be strictly avoided to preserve the integrity of both subspecies

HOUSING

These birds are swift flyers, so a minimum aviary size of 3.6m long x 0.9m wide x 1.2m high should be adequate. However, giving them as much space as you can afford will let you fully appreciate their lively character and entertaining antics.

Use 12.5mm galvanised welded mesh for the aviary walls. At least one-third of the aviary should be sheltered from drafts and harsh weather using Colorbond sheeting, and the roof should be insulated with a polystyrene-encased fridge panel—especially important in regions where summer temperatures can become unbearable. Some aviary designs allow the roof to be slightly elevated above the birds, providing airflow and helping to keep them cool.

Provide a variety of perches with different diameters to encourage natural foot exercise and gripping, just as they would do in the wild. Including branches from flowering plants like grevillea, eucalyptus, or bottlebrush adds enrichment. Avoid PVC and steel perches—they may last longer but can be cold in winter and are detrimental to the birds' wellbeing. Introducing fresh perches regularly also provides entertainment, as the birds explore the leaves and flowers. Watching them hang upside down and jostle with each other is a joy for any keeper.

A SUITABLE NEST BOX

A nest box measuring about 250mm square x 300mm high should be provided. Even outside the breeding season, lorikeets appreciate the protection and often roost in these boxes at night. If a raptor appears nearby, the birds will quickly dart inside for safety. The entrance hole should be just large enough for the birds to squeeze through comfortably. Include an inspection door for easy maintenance and monitoring of nestlings.

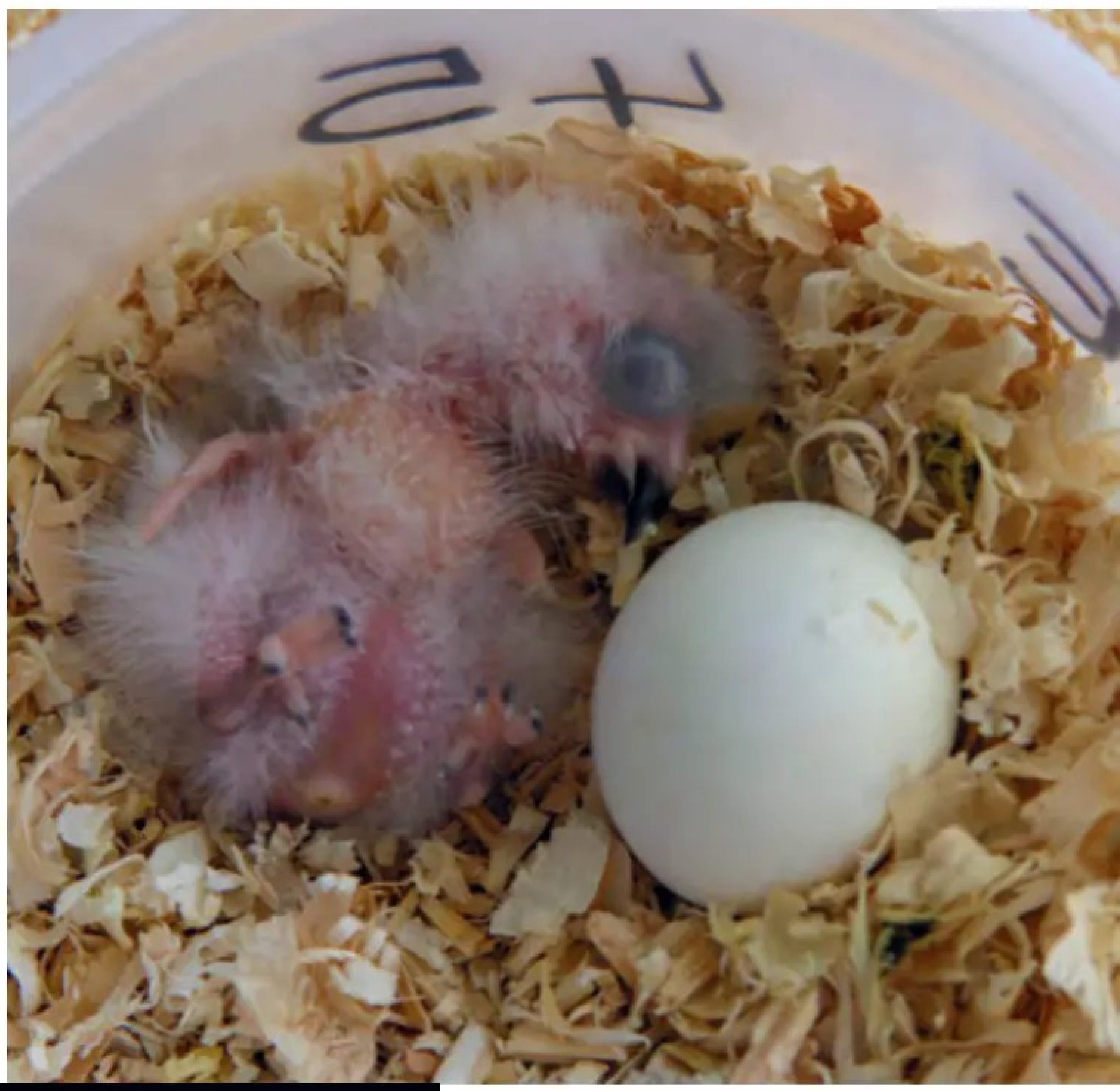
I prefer to use eucalyptus mulch for nesting material, though other types are suitable. Decayed wood is typically found in wild nests and can be mimicked. It's a good idea to have two similar nest boxes so you can swap out a soiled box without disturbing the birds too much.

A NUTRITIOUS DIET

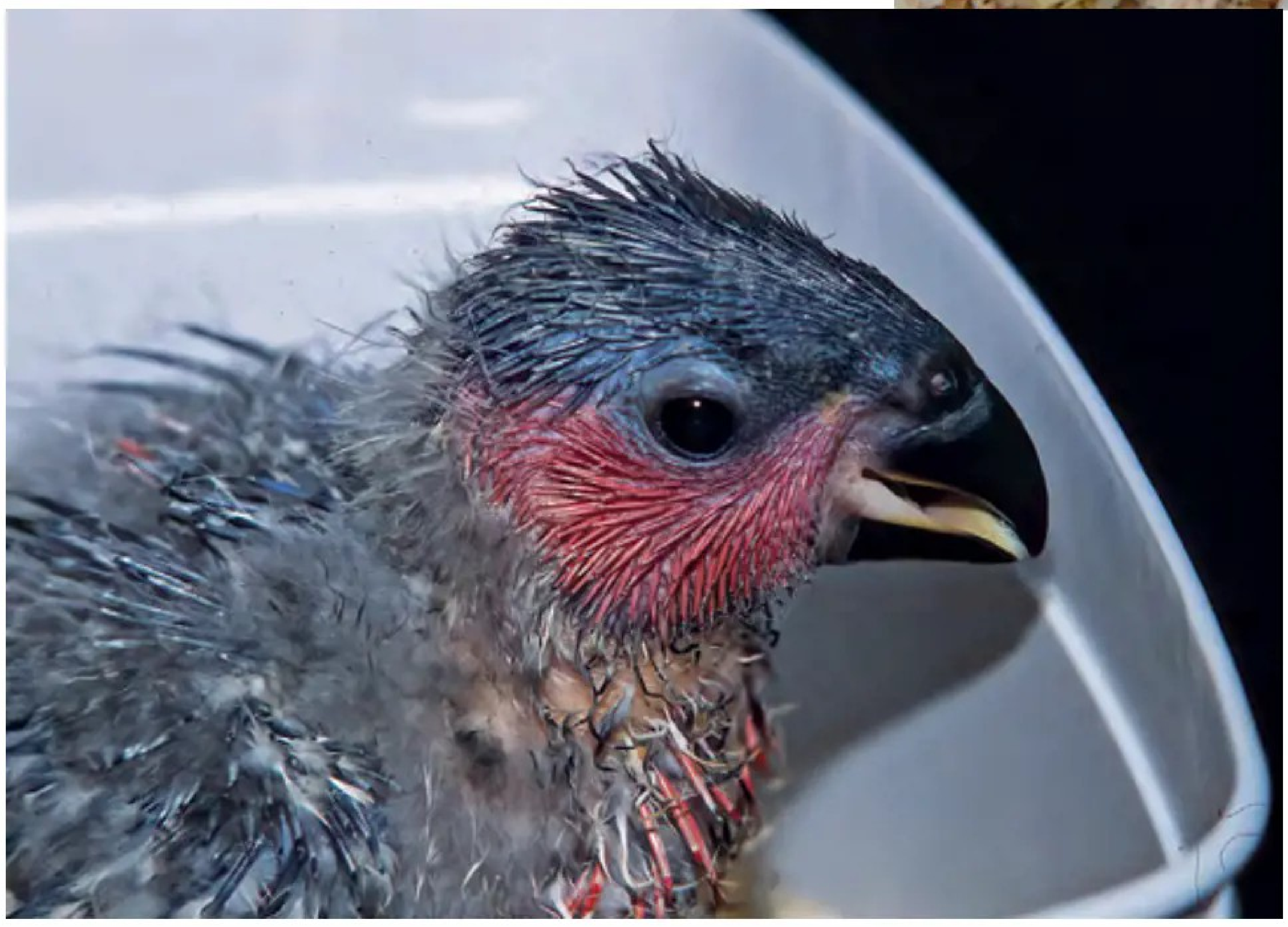
For my lories and lorikeets, I use a mixture of BOKOMO 'ProNutro', a South African cereal intended for human consumption, along with finely blended plain biscuits such as Arnott's 'Nice' or 'Milk Arrowroot', wheatgerm, Sustagen® Hospital Formula (which provides additional carbohydrates, protein, vitamins, and minerals), and malted milk powder. Importantly, this mix is low in iron. Just before feeding, I add a small amount of honey or raw sugar to sweeten the mix, along with enough warm water to achieve a smoothie-like consistency. I also incorporate blended vegetables into this mix, as described below. This wet mix is offered fresh every morning in clean bowls.

In very hot weather, the mixture can sour within 24 hours, so I remove any uneaten portion in the evening. At that time, I provide fresh fruit such as apple, pear, orange, grapes, mango, pawpaw, rockmelon—essentially whatever is in season and enjoyed by the birds.

Vegetables are an important part of the diet, although I've found my lories show limited interest in most types, except corn and celery, which they relish. To work around this, I use a supermarket mix of frozen vegetables—typically including peas, carrot, corn, cauliflower, potato, and broccoli—which I thaw, blend, and then incorporate into the daily wet mix. Judging by the healthy glow of their plumage, I believe this diet provides a solid nutritional base.



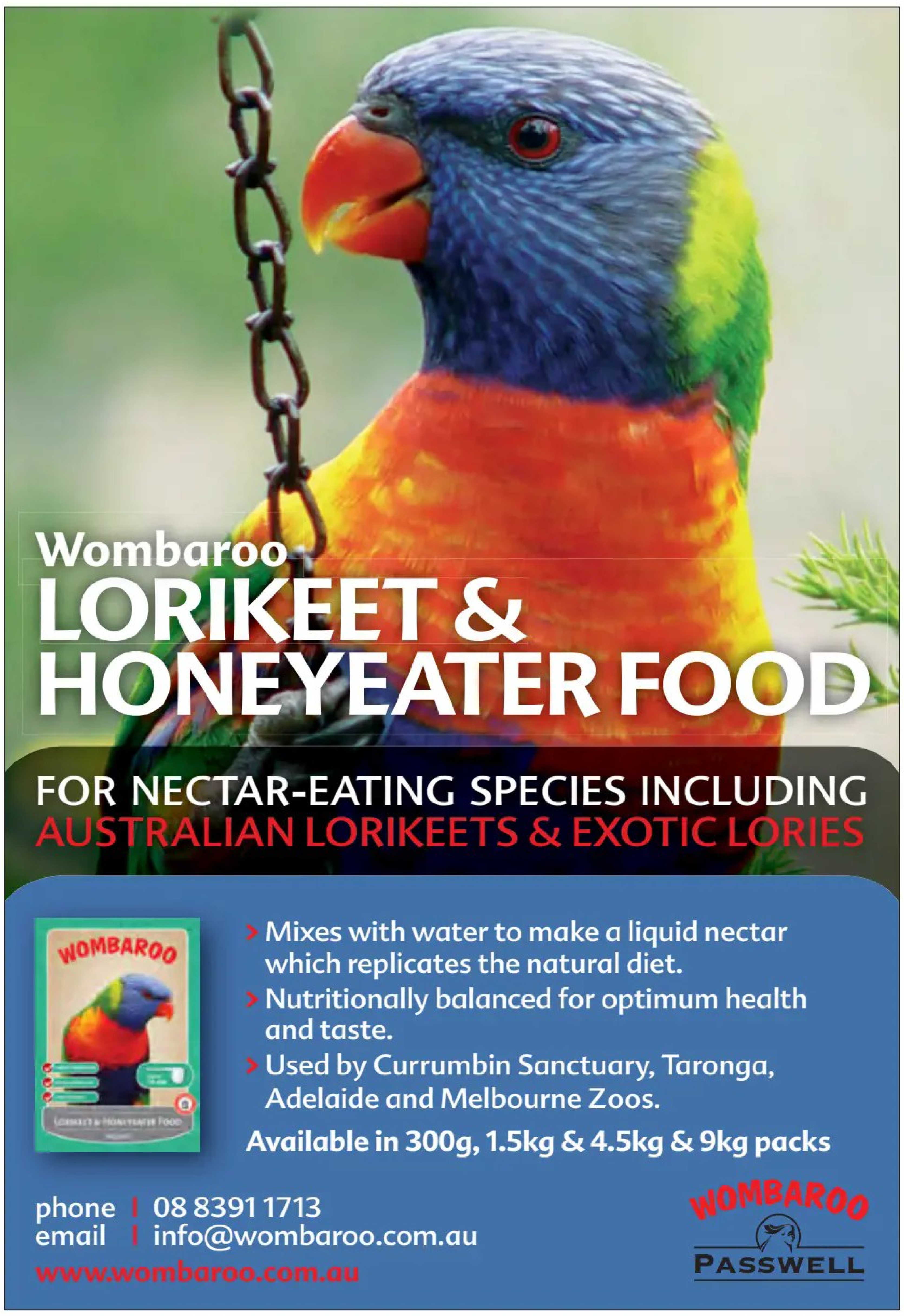
A Black-capped Lory chick, only a day or two old



Nestling of the nominate subspecies at 27 days old. Note the black beak and the soft, whitish ridge on the lower mandible, as discussed in the article

A FEW CLOSING WORDS

On a personal note, I've had to reduce the number of my lories and lorikeets due to my ongoing passion for observing birds in the wild. It became too much for my wife to care for all my birds while I was away on trips. Still, I often find myself thinking about adding more of these wonderfully bright and characterful birds back into my collection—they remain, without a doubt, my favourites among the parrot family.



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STEVE SASS

Building the Ideal Aviary:

CRITICAL DESIGN CONSIDERATIONS

PART 1

Male Painted Finch
PHOTO SIMON DEGENHARD

Male Star Finch
PHOTO SIMON DEGENHARD

Male Red-cheeked Cordon Bleu
PHOTO SIMON DEGENHARD

Bird Park
200m

Bright, sunny aviaries are key to good avicultural practice

The use of reptile UV lighting is a good alternative when aviary or bird room positioning is not optimal

Clear roof sheeting is a great way of allowing light into an aviary when you are unable to position it with a northerly aspect

INTRODUCTION

It's one of the most frequently debated topics in aviculture. For decades, birdkeepers have discussed the dos and don'ts of aviary design—what works, what doesn't, and what might work under certain conditions. To make things even more confusing, some answers are right, some are wrong, and others are... neither! Confusing? Absolutely. But one thing is clear: certain design principles are worth considering when planning your next aviary.

Experienced aviculturists understand that not every ideal feature is always possible. We all work within constraints—whether it's space, aspect, budget, personal preferences, or the species we intend to keep. So, we adapt. We problem-solve. And we make compromises that work for our situation.

In this article, I've drawn on my experience in aviculture to outline the key factors to consider in aviary design. I've also explored how to overcome common limitations and rethink what's critical for a successful and sustainable setup.

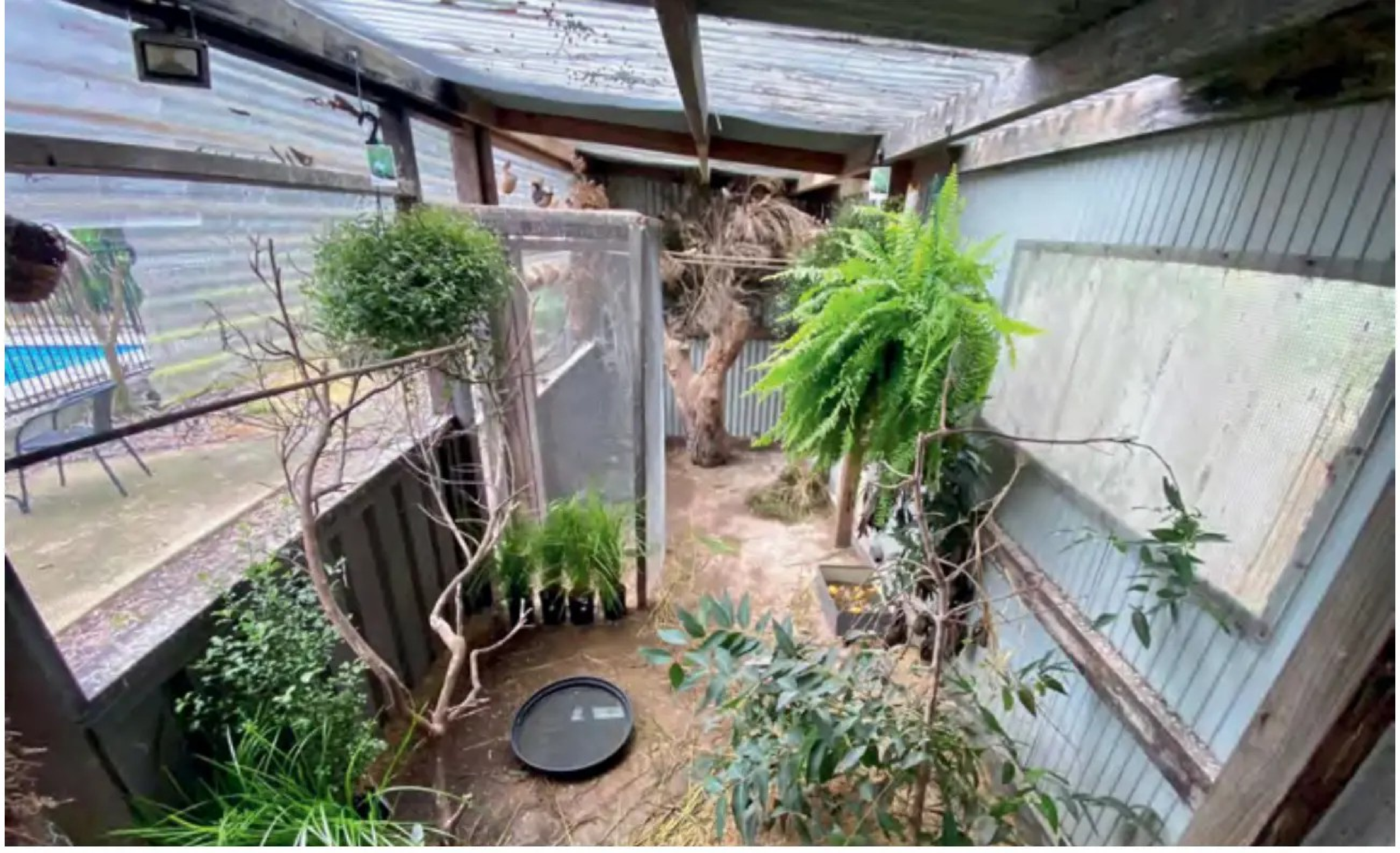
AVIARY POSITIONING

In Australia, the ideal orientation for an aviary is north-facing, with north-east being a close second. This positioning maximises sunlight during the winter months, which benefits both birds and plants. Sunlight offers a range of advantages, from providing essential ultraviolet rays and warmth to encouraging natural behaviours and supporting plant growth.

However, in many suburban settings, achieving this ideal alignment isn't always possible, especially when balancing aviary placement with how you'd like to enjoy your backyard and your birds. But don't let this stop you! It's not a dealbreaker. Many successful aviculturists operate aviaries that face south, west, or east. With a bit of adaptive management, such as using clear roofing sheets, windbreaks, and sheltered areas, you can still create a healthy and functional space for your birds.

If you use clear roofing, always place wire mesh beneath it. This ensures your birds remain safely contained should the sheets degrade and break over time.

If sunlight exposure is limited, consider incorporating products long used by reptile keepers. UV lighting that provides the UV-A and UV-B spectrum can be installed in aviaries and run on timers to supplement natural light. And even if your aviary isn't perfectly aligned, adding sections of clear roofing can allow overhead sunlight to reach the interior during the day, bringing some of the benefits of a north-facing aviary to any orientation.



Hanging baskets provide perching and nesting opportunities in otherwise often unutilised vertical spaces, and I find that many finches love making use of these

OVERALL SIZE AND THE SPACE WITHIN IT

Floor space

The larger the aviary, the greater the opportunity for natural bird movement—something that significantly enhances their overall wellbeing. However, in practical terms, not every backyard can accommodate a large aviary, and budget constraints may also limit what's possible. The key consideration, then, is not just the size of the aviary but the number of birds housed within it.

A common issue in aviculture is overcrowding. Aviculturists often overstock aviaries, especially following a successful breeding season. When planning your setup, it's essential to factor in potential breeding success and ensure the space can accommodate not only the adult birds but also their offspring.

There's no single formula that works across all bird types. What may be suitable for parrots may not suit finches or softbills. I prefer to understock, particularly with finches and softbills, to minimise stress and encourage natural behaviours.

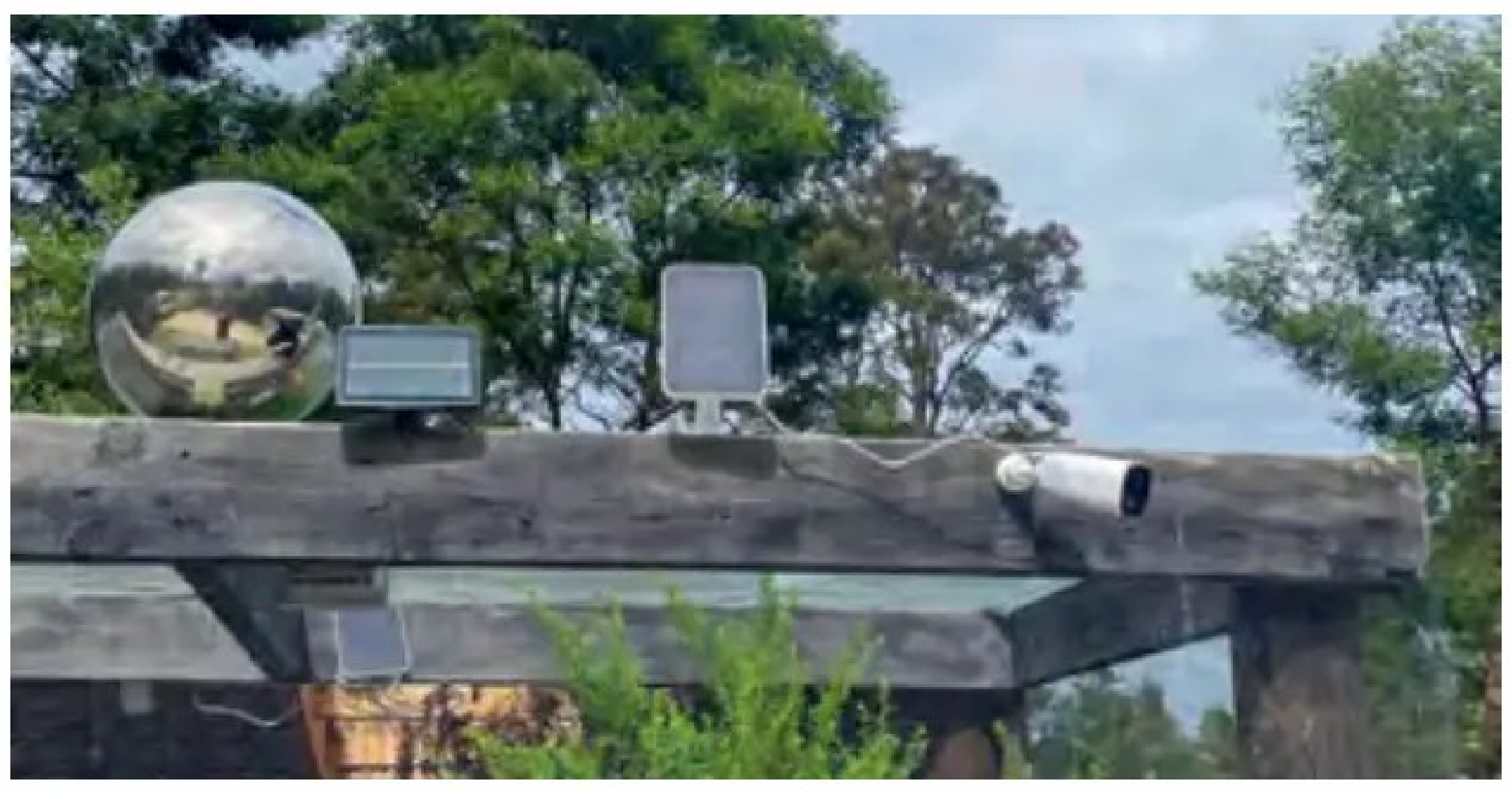
Some keepers use a basic guideline: for every 60cm x 60cm of aviary floor space, one pair of finches can be housed. Using that rationale, an aviary measuring 1.8m long x 1.2m wide can house up to six pairs. While that may work for species like Zebra Finches, it would be entirely unsuitable for a colony of six pairs of Diamond Firetails, which require more space and a less competitive environment. Always tailor your stocking levels to the species' needs rather than a one-size-fits-all rule.

When designing an aviary, I prefer to start by considering the species I intend to house. This includes whether I'll be keeping a single species or a mixed collection, and if so, how to manage potential interspecific competition.

In my experience, single-species aviaries—or those housing just two or three compatible species—tend to yield the best breeding results. If you're working with a species that does well in a colony setting, a dedicated single-species aviary is worth considering.

One setup that has worked well for me was an aviary measuring 2.4m long x 0.9m wide, housing one pair each of Star Finches, Painted Finches, and Red-cheeked Cordon Bleus. This combination proved harmonious, and the space was sufficient to accommodate successful breeding and the resulting offspring. By keeping stocking levels low, you create a more comfortable, less stressful environment that supports both breeding and the well-being of your birds.

Trenches are dug in readiness for the installation of rat walls, which are an effective way to exclude rodents



Gazing balls and night lights are low-cost methods to alleviate predator issues, and are easy to incorporate into your design. This image also shows one of our motion-activated security cameras, which operates 24:7

Using 6mm vermin-proof wire will help keep out unwanted predators, including rodents and snakes

Vertical space

Vertical space is often overlooked in aviary design, yet it plays a crucial role in maximising how birds utilise the environment. While floor space is important, providing adequate vertical features enhances opportunities for nesting, roosting, and natural social behaviours. Effective ways to incorporate vertical space include using tall plants, hanging pots, and training creepers to grow along poles or walls. You can also install bracken fern tubes (or tubes containing other suitable brush) and position perches at varying heights and angles to mimic natural vines and climbing foliage. These elements not only enrich the birds' environment but also encourage more natural movement and interaction.

SAFETY AND SECURITY

Keeping Predators Out

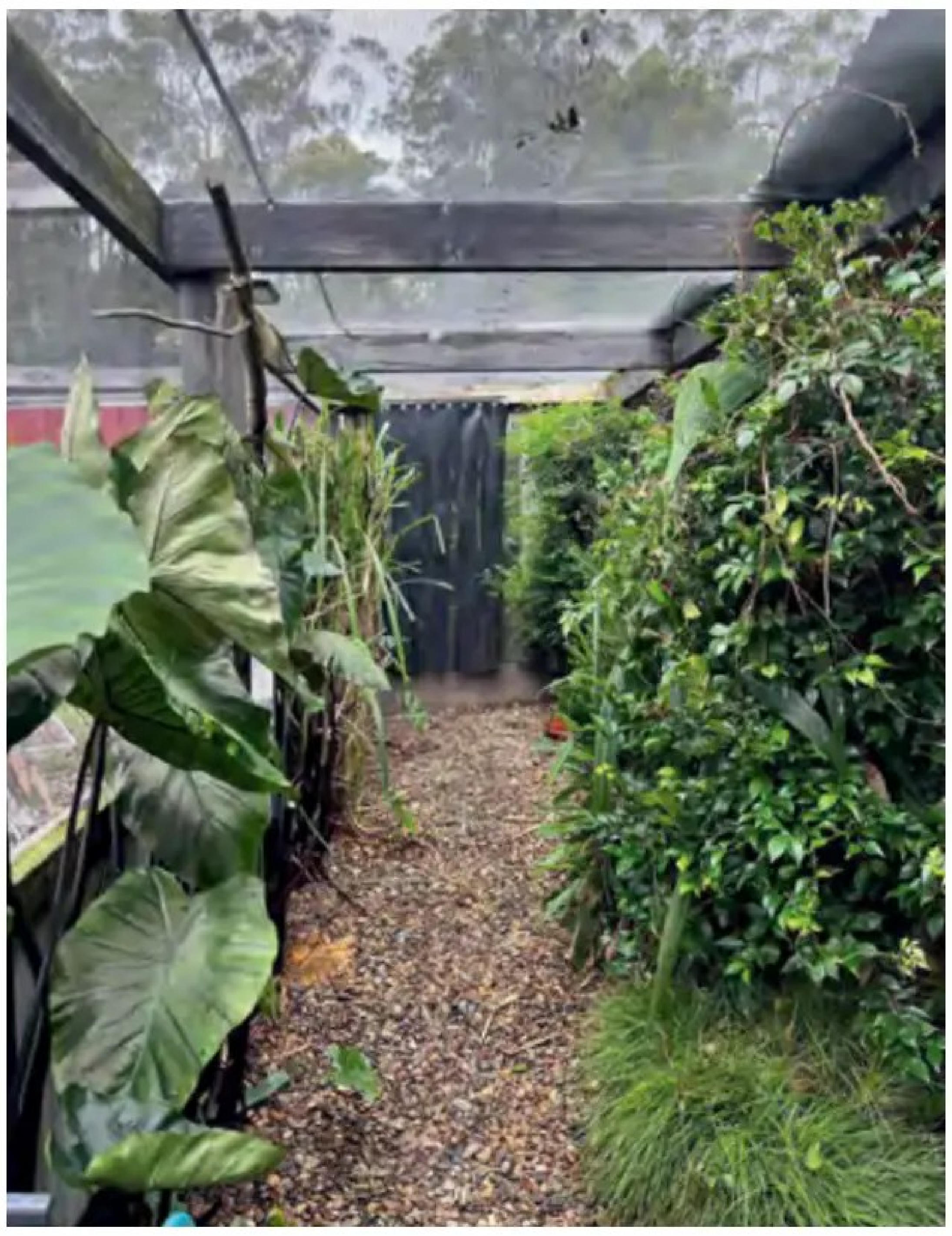
The health and safety of our bird collections ultimately rest on our shoulders. Once we build an aviary and introduce birds, they become vulnerable to constant threats from aerial predators and rodents like mice and rats. By incorporating smart design features into your aviary from the outset, you can greatly reduce these risks and save yourself trouble down the line.

Aerial predators include species such as goshawks, butcherbirds, and Noisy Miners during the day, as well as nocturnal hunters like owls. One of the most effective defences is using the correct wire size—6mm vermin-proof mesh can significantly reduce the chance of predators reaching in with beaks or talons.

Gazing balls can be effective deterrents for some raptors, including goshawks, but they tend to have little to no effect on persistent species like Noisy Miners and butcherbirds. If predator pressure is high in your area, installing a double layer of netting can be a worthwhile investment. By spacing two layers of mesh or netting approximately 100mm apart, you create a buffer zone that prevents predators from reaching through to your birds. This setup can be particularly useful if you opt not to fully roof your aviary.

Owls are particularly challenging to deter. One method we've found highly effective is incorporating night lights into the aviary. Given owls' nocturnal hunting habits, these lights allow birds disturbed by a passing owl to safely re-perch rather than panicking and clinging to the wire on the outer walls, where they become easy targets for owl attacks.

Designing your aviary to be rodent-proof is relatively straightforward. A crucial feature is the installation of 'rat walls'—a term we use to describe extending the external cladding of the aviary below ground level. I recommend a minimum depth of 60cm, but in practice, I aim for at least 70cm and up to 90cm where soil conditions and machinery allow. This barrier prevents rodents from burrowing into the aviary. Alternatively, a concrete slab base can eliminate the need for rat walls. However, I generally avoid concrete floors, as they limit the ability to plant within the aviary and reduce flexibility in modifying substrates.

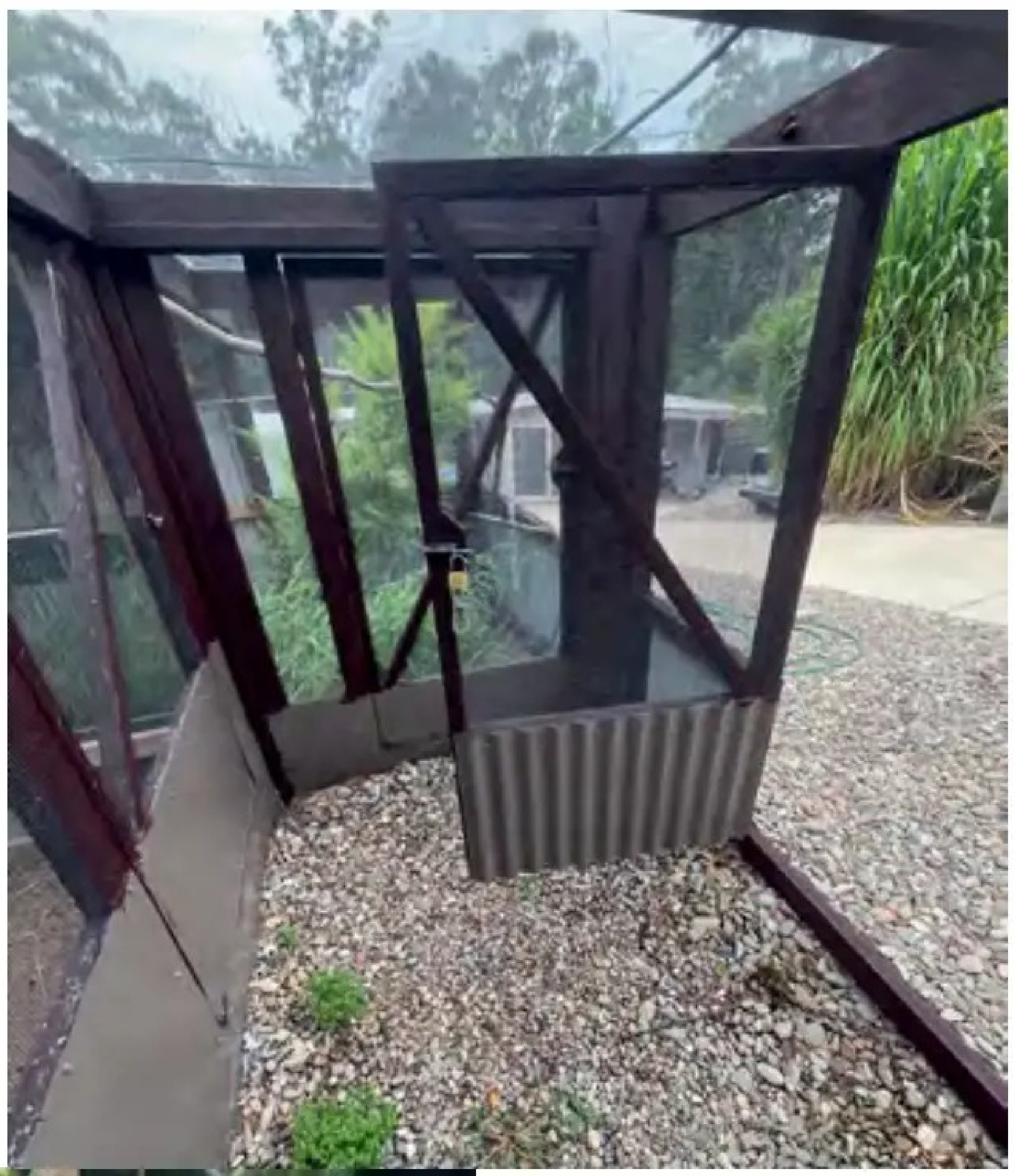


Using tall plants such as grasses and climbers provides additional opportunities for natural behaviours and enrichment within your aviary

Electric fencing is another important consideration in aviary design. It can be highly effective in deterring roaming neighbourhood cats from walking on aviary roofs and frightening your birds, as well as preventing rodents from climbing up the walls, especially critical if you opt for nylon netting. Just be sure to install a system that allows the power to be easily switched on and off as needed.

Escape prevention

Double-door or airlock systems are standard in zoos and bird parks around the world, yet they are less commonly seen in private aviaries, often dismissed as expensive or as taking up valuable space. However, losing a bird through an open doorway is a costly and heartbreaking mistake—one that can be easily prevented by incorporating a double-door system into your design. We never build an aviary without one, and most experienced aviculturists follow the same rule. If possible, don't cut corners here. Design your double-door/walkway area with enough space to comfortably fit yourself and a wheelbarrow. This will make regular maintenance far more convenient in the long run.



The incorporation of a double-door airlock ensures that birds cannot escape when entering aviaries. Ensuring that a wheelbarrow can fit through the doors and comfortably within the airlock makes maintenance tasks much simpler

A browse tube stocked with bottlebrush and being utilised by Purple-crowned Lorikeets. Fresh browse is best offered daily for maximum enrichment

Weather Protection

Protecting aviary occupants from the elements depends greatly on your local climate and whether you can orient your aviary to maximise sunlight exposure. In Australia, cold winds typically come from the south or south-west and shielding your birds from these is essential. While birds generally tolerate cold temperatures, cold winds and draughts can be detrimental to their health. If your aviary must face these directions, consider enclosing the south-facing walls with clear sheeting. This can be done temporarily using roll-up bistro blinds, semi-permanently with plastic panels, or permanently with clear sheeting or glass windows.

Equally important is protection from excessive heat. Insulated panels—commonly used in cool room construction—are now being widely adopted for aviary ceilings and, increasingly, for walls. These panels offer a cost-effective and efficient way to maintain a stable temperature, particularly in regions with extreme weather fluctuations.

Installing a misting system is another excellent way to offer relief during hot weather. If possible, include tap access within your aviary structure to easily connect one of the many misting systems available at garden centres and hardware stores.

ENRICHMENT

As previously mentioned, the health and well-being of birds in our care is ultimately our responsibility. While it's nearly impossible to replicate the conditions of a wild environment, thoughtful aviary design can incorporate features that stimulate natural behaviours and enhance quality of life.

For finches, softbills, pigeons, doves, and some parrot species, a planted aviary offers a simple yet highly effective form of enrichment. For species prone to chewing, browse tubes provide an excellent alternative to prevent the destruction of living plants while still offering similar stimulation.

Natural ropes, such as those made from hemp fibre, are another great addition. Strung around the aviary, they serve as curved perches and are well-received by a variety of species, from parrots and finches to softbills and doves. Birds enjoy the gentle sway of the rope, which adds a dynamic element to their environment and encourages activity.

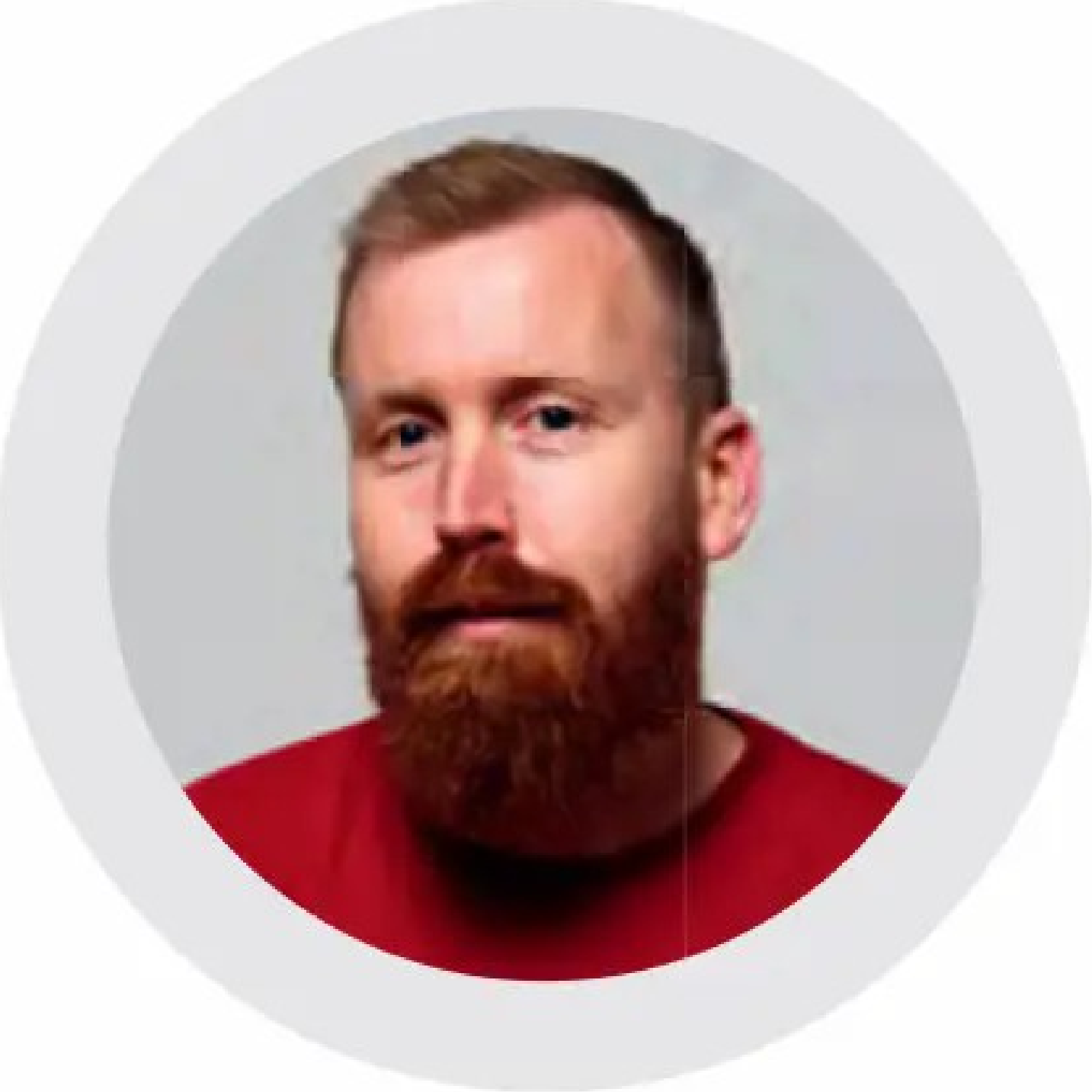
Misting systems not only provide respite from hot temperatures, but they also provide the opportunity to simulate 'rain', providing an additional form of enrichment for your birds.

EDITOR'S NOTE:

Stay tuned for part II of this very informative article in the next issue of ***BirdKeeper***. abk

Mary-lee Sloan

ELEVATING NEW ZEALAND AVICULTURE ON THE GLOBAL STAGE



AUTHOR & PHOTOS

JADE WELCH

INTRODUCTION

On the outskirts of Auckland, New Zealand, Mary-lee Sloan lives on a 15-acre property surrounded by lush greenery, gardens and aviaries. The property is not only home to an incredible array of parrots and cockatoos but is also home to her business, Parrots International NZ (PINZ).

PINZ is a successful and well-known Avicultural business focusing on the export of parrots and cockatoos, including Galahs and Pink Cockatoos, to various countries throughout the world. Having built it from the ground up, PINZ's success can be attributed to Mary-lee's drive, passion and business expertise. As with most successful businesses, though, Mary-Lee had to start small.

THE BIRD JOURNEY STARTED IN 2001

Mary-lee's journey with birds first started in 2001. Her children, who were young at the time, wanted pet fish, however, Mary-lee preferred birds. So, they headed down to the Bird Barn in Auckland and came home with Budgies for the kids and a lorikeet for Mary-lee.

Mary-lee breeds Eclectus Parrots for the pet market

Encouraged by the Bird Barn's offer to buy back any young Budgies they bred, the kids decided to try their hand at breeding them. So, Mary-lee decided to try her hand at breeding lorikeets. Around this time, she attended her first meeting of the Parrot Society of New Zealand (PSNZ)—but more on that later.

Having been a clothing manufacturer for 38 years, Mary-lee wanted to do things right. So, she had the Bird Barn build her some aviaries on the quarter-acre block she was living on at the time. Alongside a small flock of lorikeets, she acquired a pair of Eclectus Parrots and a pair of Corellas. Before long, her pet Rainbow Lorikeet laid an egg, proving it wasn't the male she had assumed it to be. This led her to purchase a partner for it, and as Mary-lee puts it, 'Once I started, I didn't stop'.

While the kids quickly lost interest in the birds and the responsibilities that came with caring for them, it was full steam ahead for Mary-lee. Before long, she had 43 aviaries on that quarter-acre block, and she reflects on how supportive the neighbours were. There were no noise complaints, just friendly, welcoming neighbours.

TIME TO GET SERIOUS

It was around this time that Mary-lee decided to get serious about breeding birds. She realised that she was coming home each day feeling stressed and that watching the birds took that stress away; this pointed clearly to her next step. As Mary-lee puts it, 'It was such a relief to be able to switch off and just think about what the birds were doing'.

EXPORTING BIRDS

With that decision made, Mary-lee began researching how to export birds. She reached out to her contacts, asking what species she should focus on breeding to expand into the export market. One friend suggested Galahs and other cockatoos, so she got herself some. Around the same time, a previous exporter offered her their export licence, which she accepted. Her first export took place in 2005, just before she moved, and was primarily made up of lorikeets.

Lutino and black-eyed white Galahs

CURRENT LOCATION

With her collection growing and exports underway, Mary-lee knew she couldn't remain on the quarter-acre property. In 2007, she moved to her current location. The new property featured several old tunnel houses, once used to grow carnations, and large clumps of overgrown bamboo, but she saw its potential. Once cleaned up, it would be perfect: spacious enough for a quarantine facility and numerous aviaries. It also offered the privacy she wanted and was far enough from neighbours to ease any concerns about noise complaints.

Mary-lee brought some old aviaries with her for temporary housing and hired someone to help clean up the property and build new aviaries. Around the same time, the quarantine facility and the first set of permanent aviaries were constructed. Further construction allowed her to dismantle the temporary enclosures as new banks of aviaries were completed.

'It's expensive having to have someone do it all', Mary-lee says, but she was determined to have it done right. She notes that the concrete was just as costly as the aviaries, and most of her aviaries are built on concrete floors. At last, though, she was in the right place to grow her collection, breed birds, and export a wider range of species to the world.

THE NEED TO HAND-REAR

In addition to parent-rearing, Mary-lee understood the need to hand-rear chicks pulled from the nest or hatched from artificially incubated eggs, especially since many of her birds were destined for the pet market. She hand-reared for the first time when she bred her first Red-collared Lorikeets at her previous property. The pair abandoned their chicks at just three weeks old, and without a brooder or incubator at the time, Mary-lee had to improvise. It was a valuable lesson—one that ensured she was well-prepared from that point on. It didn't stop there; today, with vast knowledge of incubation and hand-rearing, Mary-lee continues to raise chicks by hand.

Speaking of hand-rearing, when asked to nominate a species that is a challenge to incubate and raise, Mary-lee singles out the Citron-crested Cockatoo. Her pairs don't sit on their eggs, and she finds them difficult to incubate from day one. If they happen to lay during the Galah breeding season, she places the eggs under Galahs for the first 10 to 12 days of incubation. From that point on, she finds them much easier to hatch.

So, why not let the Galahs raise the chicks right through? Mary-lee has tried that before but found that the Galahs work out that they aren't their own and let the chicks die. She explains, 'It's likely because the chicks make a different noise to the Galah chicks'.

So, does she have a favourite species to hand-rear? Yes—Mary-lee names the African Grey, which she finds easy to raise. Lorikeets, on the other hand, she admits, are 'a bit of a pain' because they never stop breeding. At one point, she was hand-rearing over 300 lorikeets each season for the export market. For this reason, she's since scaled back, having sold off most of her lorikeet collection.

The Citron-crested Cockatoo holds a special place in Mary-lee's heart

Mary-lee and Mark A. Davies presenting gifts of appreciation to two of the speakers at the 2018 PSNZ convention

Aviaries housing Galahs and Pink Cockatoos

Mary-lee's quanrantine facility

Mary-lee has hosted numerous aviary tours over the years

Mary-Lee contucting a session at a PSNZ pop-up workshop

YEAR
OVAT
PARROT SOCIETY of New Zealand

Attendees at one of the PSNZ conferences. Mary-lee sponsors and assists with organising these events

Mary-lee demonstrating how to hand-feed a Red-tailed Black Cockatoo at a pop-up workshop held by the PSNZ

PARROT SOCIETY OF NEW ZEALAND

Throughout her time with birds, Mary-lee has maintained a strong connection with the PSNZ, having joined on the very first day she attended a meeting back in 2001. She enjoyed being part of the gatherings, and it wasn't long before she was asked to take on the role of president, initially agreeing to do it for just one year. That one year turned into two terms, with Mary-lee serving as president for just over a decade.

With her business mindset, Mary-lee saw ways to make the society more beneficial for its members while also generating income, especially since it had been operating on funds left by past members. From when she first joined, she had hoped to see more learning opportunities, such as workshops where people could learn skills like hand-rearing. Early in her presidency, she put the idea to the members, asking if anyone would be interested in attending workshops.

Members responded positively, expressing interest in the idea. So, Mary-lee reached out to renowned New Zealand avian vet Dr. Berend Westera and asked if he would run a workshop for the members. Berend agreed, and with a strong turnout of 45 attendees eager to learn from him, the day was a great success.

That was the moment the workshops took flight. Mary-lee believed the Parrot Society could maximise the potential of these events by organising raffles and auctions to raise funds for the society. These initiatives proved successful and continue to be, with the society hosting pop-up workshops annually. These one-day sessions feature multiple speakers covering a range of topics, including nest box design, nutrition, hand-rearing, and more.

Mary-lee and close friends, Mark A. Davies (left) and Hayden van Hooff

CONVENTIONS

With the success of the pop-up workshops, the Parrot Society and its committee expanded their efforts by hosting conventions, attracting guest speakers and attendees from across New Zealand and around the world. Renowned figures such as Rick Jordan and many others continue to draw crowds, while sponsors readily lend their support to these well-regarded conventions. The most recent convention was held in April 2025.

In addition to providing attendees with great opportunities to learn and network, the conventions also provide an insight into aviculture in New Zealand through aviary tours to various breeders. Mary-lee's aviaries have been a popular stop on several of these visits. Another great initiative by the committee has been the introduction of a **Pōwhiri**, a traditional Māori welcome ceremony. A powerful expression of New Zealand culture, Mary-lee credits Mark A. Davies with bringing this meaningful tradition to the convention experience.

NOT ALL SMOOTH SAILING

It hasn't all been smooth sailing for Mary-lee, her business, or the Parrot Society of New Zealand, though. In recent times, they found themselves in opposition to the Auckland Regional Council, which sought to ban six bird species as well as reptiles. Mary-lee explains that both she and the Parrot Society only learned of the proposed ban in its later stages, with no prior consultation from the council. The ban, if implemented, would have significantly impacted her business, fellow exporters, and members of the Society.

The proposed ban meant that species Mary-lee keeps, breeds, and exports, such as the Galah and Sulphur-crested Cockatoo, would no longer be permitted to be bred, sold, or distributed within the Auckland region. In addition to these, the ban also targeted other popular species, including the Rainbow Lorikeet, Eastern Rosella, Quaker Parrot, and Indian Ringneck Parrot.

As soon as Mary-lee learned of the proposed ban, she knew it was something that had to be fought. A lawyer was engaged immediately, and eventually, three lawyers were involved in the case. While legal discussions with the council went back and forth, it took Mary-lee several months just to secure an exemption for her business. This exemption allowed her to transport birds through Auckland, for veterinary visits or export, without needing prior approval.

Before granting the exemption, Mary-lee explains that members of the council visited her property to inspect the aviaries, ensuring they had proper walkways and met compliance standards. All the while, stress levels were high, and legal costs mounted, reaching close to NZ$190,000. Mary-lee personally guaranteed the full amount, committing to cover the entire bill if the Parrot Society was unable to do so.

After extensive back and forth, the legal team brought in an independent expert to review the cost-benefit analysis provided by the council. According to Mary-lee, the analysis was found to be deeply flawed, an assessment that proved pivotal. With this, the council opted to settle just two days before the case was due to go to court. In the end, the Parrot Society had won—at least to a point.

Auckland Council attempted to ban 6 species of parrots from being kept, one being the Sulphur-crested Cockatoo, which Mary-lee breeds

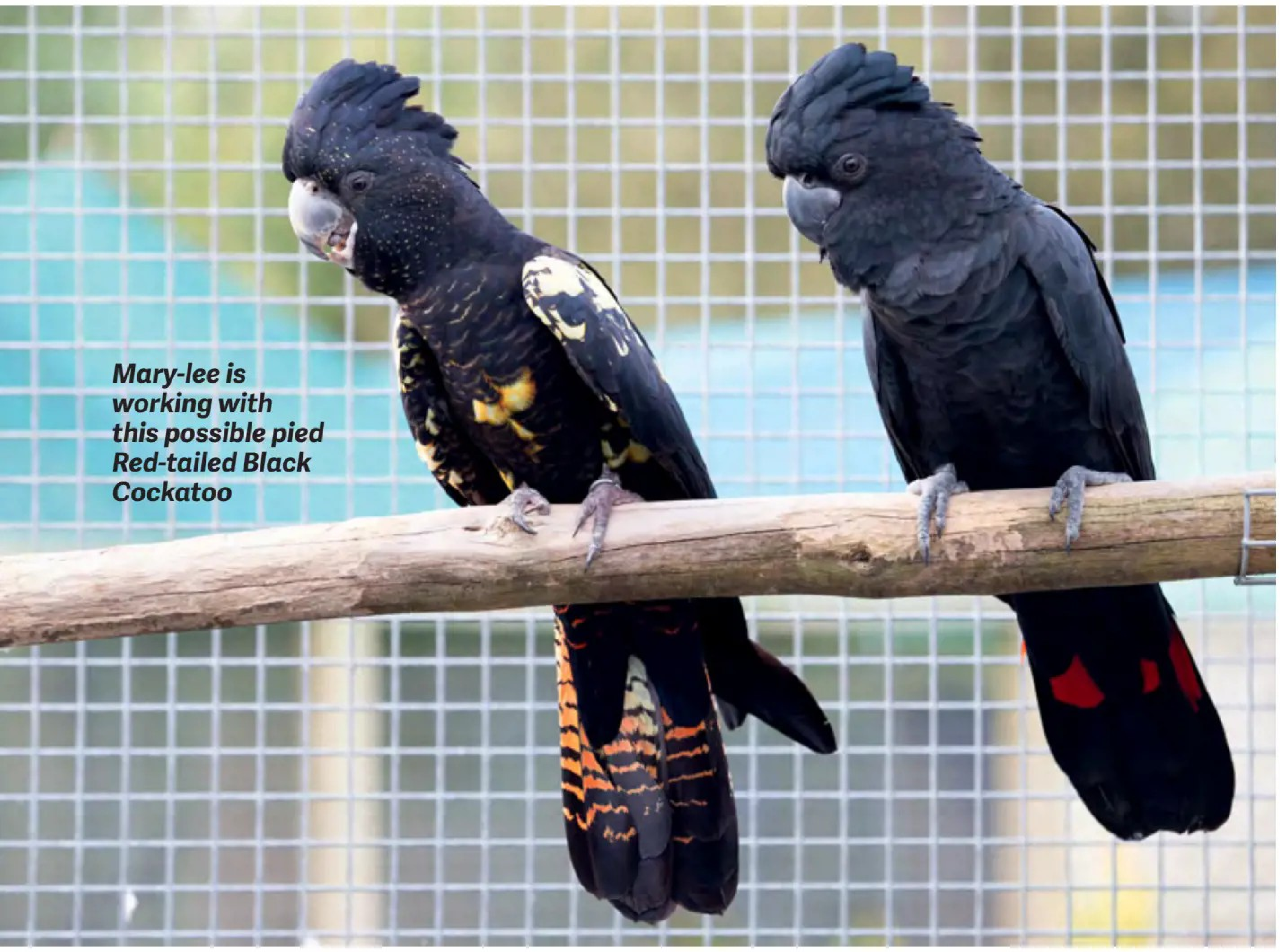
As a result of the settlement, the council agreed to remove Sulphur-crested Cockatoos, Galahs, and Eastern Rosellas from the banned list. However, despite Quaker Parrots being difficult to breed in New Zealand and costly, the council refused to lift the ban on them, citing concerns about the potential for escape and the risk of establishing feral populations. The Rainbow Lorikeet and Indian Ringneck were also to remain on the banned list.

The matter isn't entirely settled, however, as the council is set to review the act again this year. On a positive note, as part of the agreement, they have committed to keeping the Parrot Society informed of any proposed changes and to consulting with them throughout the process. Additionally, council representatives now attend bird sales to ensure that Indian Ringnecks, Rainbow Lorikeets, and Quaker Parrots are not being sold in violation of the current restrictions.

THE LARGE LEGAL BILL

So, what was to be done about the large legal bill? Mary-lee, along with a fellow exporter and several large-scale breeders, contributed toward the costs, being aware of the impact the outcome would have on them, even though they didn't reside in the affected area. Meanwhile, the Parrot Society of New Zealand raised funds through raffles and pop-up workshops. Over three years, their combined efforts cleared the debt.

Reflecting on the battle with the council, Mary-lee says, 'If the council had consulted the Society when planning the ban, it would have been easier. But since they came after the decision was made, it was harder, and we had to bring in a lawyer'. Now that the legal battle is behind her, Mary-lee has returned to focusing on exporting once again.



Mary-lee is working with this possible pied Red-tailed Black Cockatoo

Moluccan Cockatoo

SPECIES CURRENTLY BEING EXPORTED

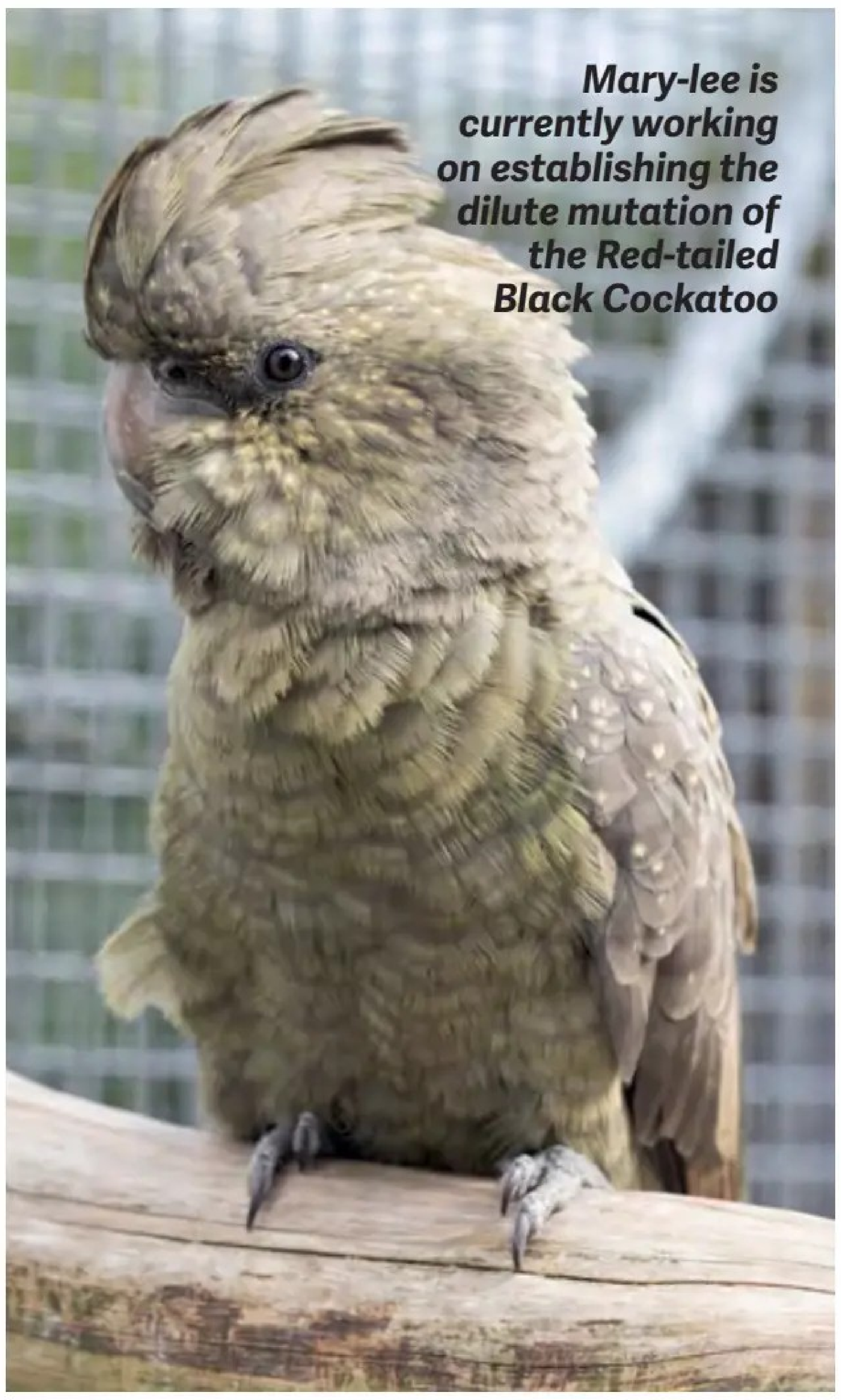
She currently exports Galahs, Pink Cockatoos, Sulphur-crested Cockatoos, Little Corellas, and Red-tailed Black Cockatoos to Japan and Taiwan. Domestically, she supplies the New Zealand market with Macaws, Amazons, and Eclectus parrots, among other species. She also has a growing list of breeders in New Zealand wanting Citron-crested Cockatoos.

Where she experiences a shortfall, Mary-lee sources birds from reputable breeders across the North and South Islands for export, but this has become increasingly challenging. When she first started, there were quite a few breeders, but now their numbers are reduced, as some have retired, and younger people are showing little interest in taking up the hobby.

She explains that at one point, she would receive as many as 16 Pink Cockatoos from a single breeder, but nowadays, not many breed them. In addition to cockatoos, she also exported Crimson Rosellas, Indian Ringnecks, Alexandrines, Australian King Parrots, and various lorikeets. Previously, she had over 100 pairs of lorikeets set up to breed for the export market.

Exporting isn't as straightforward as it once was. Mary-lee explains that everything must be spot on—no errors are tolerated, and all birds must have a closed leg ring. Drawing from her experience in the clothing industry, she knows that if you get everything right from the start, the whole process runs smoothly.

Malabar Parrot



Mary-lee is currently working on establishing the dilute mutation of the Red-tailed Black Cockatoo

CLOSER TO HOME

Outside of exporting, when Mary-lee looks closer to home, she says that while she admires the beauty of the Scarlet Macaw, it's the Citron-crested Cockatoo that holds a special place in her heart. Thanks to her efforts in breeding this species, they are now also present in the collections of a small number of other breeders in New Zealand.

She began working with the species around 2012, acquiring them from a bird park that was closing. Initially, she brought in five birds and then sourced a sixth, giving her a total of three pairs. The original five birds had never been provided with nest boxes, but whilst Mary-lee had them in quarantine, she noticed one pair was already mating. Within two months, and with the addition of a nest box, they laid eggs. This marked the beginning of Mary-lee's success with this difficult-to-breed species, and she remains successful with them to this day.

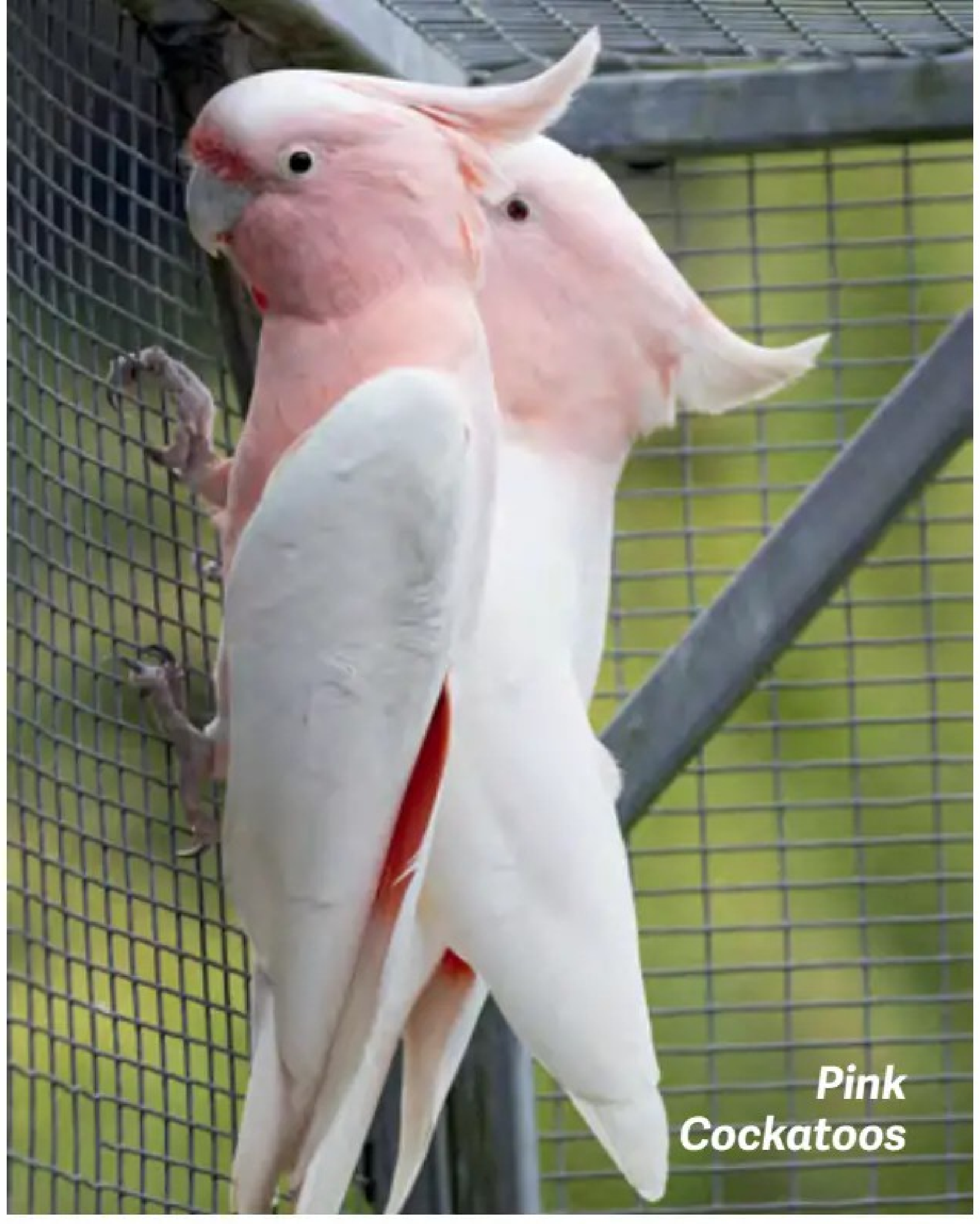
Beyond Citron-crested Cockatoos, Mary-lee has achieved many highlights, such as successfully breeding Gang-gang Cockatoos. She admits, 'With any new bird species I breed for the first time, I feel like I've achieved a lot personally'. She also takes pride in the breeding of a dilute Red-tailed Black Cockatoo, a New Zealand first.

Unfortunately, due to ill health, Mary-lee had to part with her Gang-gang and Moluccan Cockatoos. While it was a difficult decision, she is happy to know they've found a good home, one where they have continued to breed successfully for their new owner.

ADVICE TO NEWCOMERS

After all her time and experience in aviculture, when asked what advice she'd give to newcomers, Mary-lee jokingly says, 'RUN!' But on a more serious note, she advises, 'Pick the bird species you love and work from there. If you like King Parrots, then start with King Parrots. You need to have a genuine passion for it from the beginning. Don't just start with something because it's cheap. You need passion and drive'.

She adds that when she first saw Red-tailed Black Cockatoos, she thought they were ugly and even declined an offer to take



Pink Cockatoos

a pair. That changed when a breeder invited her to take a closer look; she instantly fell in love and brought them home. She started with young birds and always recommends others do the same. To this day, she continues to keep and breed this stunning Australian species, one she never thought she'd own.

So, what changes would Mary-lee make if she were to start again? She says she would 'cut out some of the in-between birds', like lorikeets. Reflecting on her experience, she explains she wouldn't go heavily into lorikeets if given the chance to do it all over again, as they require a lot of work. 'If you're not prepared to put in the work, don't keep them', she advises.

Magna Double Yellow-headed Amazons

Scarlet Macaws with two of their young

FINAL COMMENTS

Outside of aviculture, Mary-lee is a proud mother and grandmother. It was her children who sparked her journey into the world of birds, and for that, she is thankful. Her family and her birds remain her true constants, and her passion for both is as strong as ever. Not only is she an avid breeder and exporter, but she is also a passionate supporter of aviculture worldwide, having built strong relationships with both local and international breeders.

Her commitment to New Zealand aviculture has always been unwavering, and she continues to stand up for what's right, proudly flying the New Zealand flag. When I think of people in aviculture who are strong and who lead the way, I think of Mary-Lee!

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AUTHOR & PHOTOS
DAVID PACE

AVIAN HUSBANDRY NOTES FOR THE

Pictorella Mannikin

THE following are extracts from the soon-to-be-released A Guide to...PICTORELLA MANNIKINS, Their Management, Care and Breeding—Avian husbandry notes for the Pictorella Mannikin Heteromunia pectoralis (Second edition)—due for release at the Queensland Finch Society's 'Finches 25' convention, 5th-6th July 2025, Brisbane, Australia, and will be available directly through ***Australian Birdkeeper****.*

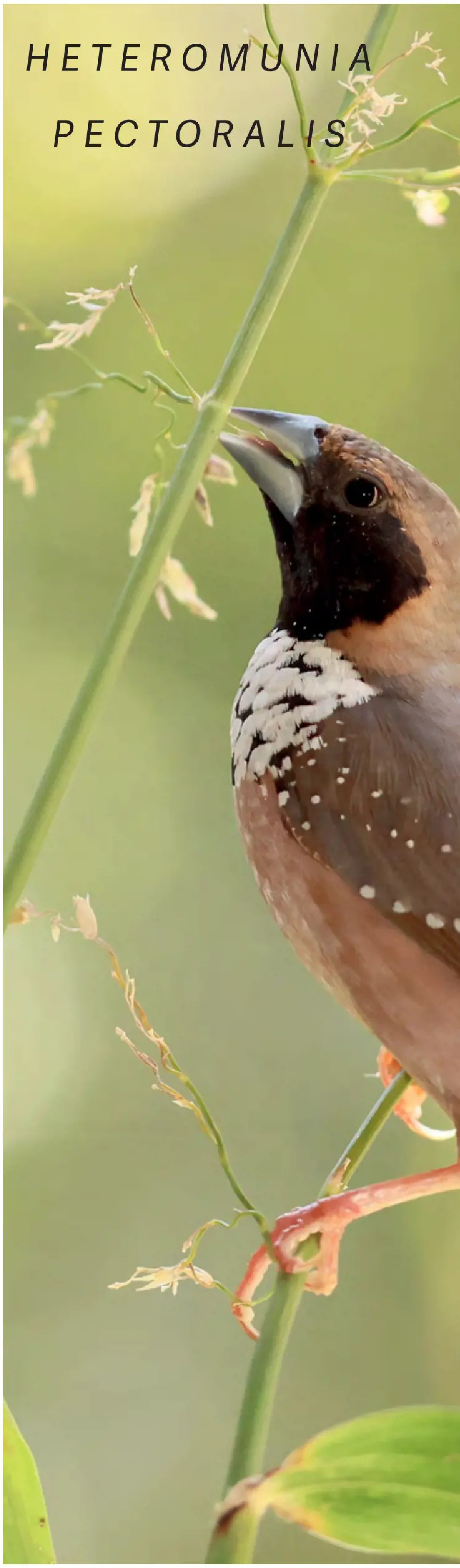
PICTORELLA MANNIKIN—A FIRM FAVOURITE

What is your favourite avicultural subject? As aviculturists, we are often asked this very question. If you're like me, it is such a difficult question to answer. The beauty of the common Zebra Finch, for instance, had early ornithologists in raptures when it was first described in 1837. John Gould described the Zebra Finch as *'one of the smallest of the genus yet discovered in Australia; it is also one of the most beautiful, and in the chasteness of its colouring, can scarcely be excelled'. (Cayley 1932)* The Gouldian Finch is often cited as the most attractive, and then there are the many colourful parrot species within Australian aviculture. When one genuinely likes birds, it is almost impossible not to include all birds as favourites; however, if I'm honest, I have a real soft spot for all species of pigeon, dove and quail. If I were to focus on my real 'love', it would be something less colourful than a Zebra or Gouldian Finch. A species with subtle hues and distinct markings. The bird in question is the Pictorella Mannikin.

28 YEARS SINCE THE FIRST PUBLICATION

It has been a staggering 28 years since the first publication of *'Avian Husbandry Notes for the Pictorella Mannikin Heteromunia pectoralis'*. During this time, the popularity of the Pictorella has continued to fluctuate within Australian aviculture. Data from the 2020 National Finch and Softbill Association's (NFSA) finch and softbill census indicates that nationally, 840 Pictorellas were being held by 110 of the respondents. *(Fitt 2022)* The same census held in 2023 had an alarmingly low, 307 Pictorellas, held by 56 breeders, representing 14% of respondents. The NFSA has recently classified the status of the Pictorella as *Vulnerable in Aviculture. (Fitt, 2025, Inpress)* The Pictorella is without doubt experiencing an ominous decline in Australian aviculture.

As I have had relatively positive breeding results during the past decade, with over 200 Pictorellas bred, I felt it was time to expand the information from both past and current sources to ensure this species continues to survive within Australian aviculture.



HETEROMUNIA PECTORALIS

A male Pictorella feeding on seeding grasses. The manual reflects on avicultural literature over several decades by many authors, exploring diets that have enhanced breeding results

A sleek-looking Pictorella in immaculate plumage is a striking bird. Unfortunately, this species is held in low numbers, and is listed as Vulnerable in Aviculture by the National Finch and Softbill Association (NFSA)

ORIGINAL INTRODUCTION (1997): AVIAN HUSBANDRY NOTES FOR THE PICTORELLA MANNIKIN *HETEROMUNIA PECTORALIS*

With the cessation of legal trapping of wild birds in the mid-eighties, aviculture has succeeded, in the majority of cases, to preserve its stock through captive breeding. The challenge for the future is to continue to maintain viable numbers of each species, particularly those that are either held in low numbers or whose wild populations are threatened. The Pictorella Mannikin *Heteromunia pectoralis* falls into both of these categories.

In captivity, the Pictorella Mannikin has been kept for more than a century, first arriving in Europe between 1870 and 1880. Immelmann records that it was less frequently offered than the Yellow-rumped and Chestnut-breasted Finches. *(Immelmann, 1965)* In 1987, 850 Pictorellas were held in South Australian aviaries, of which 413 birds remained by 1991. *(Shephard et al., 1991)* As recently as 1995, this species was still held in low numbers, with only 202 birds held in Victorian aviaries. *(Pace 1996 and De Graaff 1997)* No doubt Pictorellas exist in other states, but nevertheless, this species would rank as one of the rarest of Australian grassfinches in captivity, along with the Crimson Finch, Yellow-rumped Finch, Red-eared Firetail and Beautiful Firetail, of which the latter half are almost nonexistent. De Graaff records a personal observation regarding the longevity of the Pictorella Mannikin, Chestnut-breasted Finch and Yellow-rumped Finch, stating, *'... the three species of mannikins are relatively long-lived for finches. (I have owned Chestnut-breasted Mannikins that have exceeded ten years of age.) Does this mean we have an ageing population that could stop breeding soon if not carefully managed?' (De Graaff 97)*

In an edition of *Gouldian*, a publication of the Wildlife Research Unit, Environment Australia, formerly ANCA, figures were released that suggest wild populations of Pictorella were infected with air sac mite. Estimating 62% of the population is thought to be affected. Although the Pictorella population is currently defined as secure, the presence of this parasitic mite may impact upon their future numbers.

This husbandry manual has been developed in an attempt to provide the avicultural community with some guidelines for the keeping and successful breeding of this species. The information contained is primarily based upon literature that has been published in popular avicultural texts and journals dating back to the 1950s. The experiences of the author, as a breeder of this species, have also been drawn upon, as have the experiences of other breeders that the author has had the privilege of speaking with directly.

The aim of this husbandry manual was to collate as many experiences as possible, and in doing so, it is interesting to note that some information between different breeders is in conflict. This illustrates the point that there should never be only one way of achieving success in the breeding of birds and highlights the point that the information in this husbandry manual should not be deemed as *definitive*. The experiences of others may contradict some of the experiences contained, and it is the aim of the author to supplement and revise this manual in the future.

This manual may also serve to generate interest in the Pictorella Mannikin and encourage finch breeders to specialise in a species that some believe is dull, boring and difficult to breed—nothing could be further from the truth!

THE PICTORELLA MANNIKIN—A UNIQUE GRASSFINCH

Of Australia's 18 grassfinch species, the Pictorella Mannikin is a unique species. The Pictorella was once classified in the genus *Lonchura*, along with the Chestnut-breasted Finch *Lonchura castaneothorax* and Yellow-rumped Finch *Lonchura flaviprymna*, however, it is now classified in its own genus, *Heteromunia*. The Pictorella lays claim to being Australia's oldest living finch. Evolutionary speaking, the Pictorella dates back about 8.3 million years ago, diverging from the African Quailfinch and the Locust Finch. Compare this to the Chestnut-breasted Finch, which diverged 720,000 years ago. *(Joseph 2014) (Mares siting onezoom.org)* Of Australia's 18 Grassfinches, the Pictorella is arguably the most insectivorous, further stamping its status as a unique species.

AVICULTURAL HISTORY

As mentioned in the excerpt above, historically, the Pictorella Mannikin has been kept for more than a century, first arriving in Europe between 1870 and 1880. The first Australian breeding was in 1928, by E. Lewis, of Hyde Park, South Australia. *(Forshaw & Shephard, 2012)*

STATUS IN AUSTRALIAN AVICULTURE

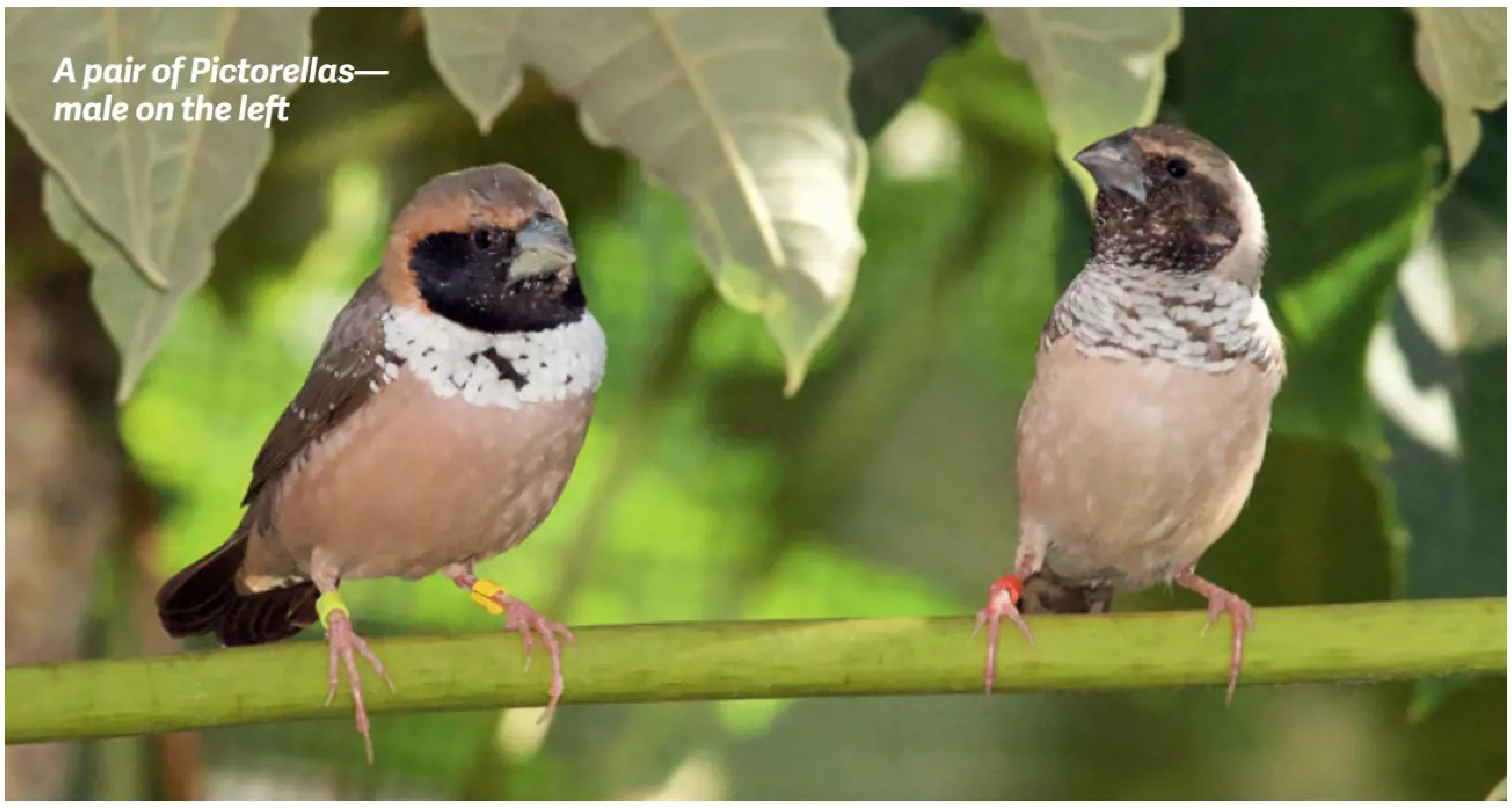
My introduction to this species was in the 1970s, when wild-caught birds could be legally and freely purchased from our local bird market in Melbourne's western suburbs. However, with the end of legal trapping of wild finches in the mid-1980s, the challenge was to maintain our captive stocks, as no new wild blood could be obtained. Fast forward 50 years, and we have indeed succeeded in breeding sufficient numbers in captivity. As mentioned at the beginning of this article, data from the 2020 NFSA finch and softbill census indicates that nationally, 840 Pictorellas were being held by 110 respondents. *(Fitt 2022)* The same census held in 2023 had an alarmingly low 307 Pictorellas, held by 56 breeders—a very worrying decline in three short years.

Although not as commonly held as other Australian grassfinches, aviculture has indeed succeeded in preserving captive bred Pictorellas. We are fortunate that aviculturists have maintained this species in Australian aviculture. The challenge for the future is to continue to maintain viable numbers of this species.

The Pictorella is a wonderful avian subject. Its beautiful, subtle markings and sleek appearance, together with its peaceful disposition, make it an excellent aviary bird. Although they can be bred freely in captivity, they can also be a temperamental breeder. Historically, the population of captive Pictorellas has always experienced ups and downs in popularity, quite similar to the fluctuations observed with the Yellow-rumped Finch. It is imperative that we collectively take up the challenge of understanding this enigmatic species.

UNDERSTANDING PICTORELLA BREEDING CYCLES, KEEPING RECORDS AND COLLATING DATA

Keeping records is a valuable tool in being able to reflect on our breeding successes and failures. Records can be as simple as a notebook that details basic aviary events, through to computer software that stores and collates data. Throughout my years in aviculture, I have used a series of exercise books with handwritten notes. Generally, I run two books. One is used to keep track of the age of the birds I keep. The second book is for breeding results. In this second book, I note the number of fledged young, the parents and the aviary number. It is the information in this book that I find of greatest benefit.



A pair of Pictorellas—male on the left

A Guide to...PICTORELLA MANNIKINS, Their Management, Care and Breeding—Avian husbandry notes for the Pictorella Mannikin Heteromunia pectoralis (Second edition)—explores various methods used by aviculturists to breed this species. The author draws not only upon his own experiences but also those of other breeders

Typical Pictorella habitat in the Kimberley, Western Australia

For example, entries for a specific species may appear as:

Date/number fledged/accumulated number bred for that species (aviary No.)

Here is a sample:
12/3/22 4 fledged/total 4 (Aviary 2)
19/4/22 3 fledged/total 7 (Aviary 3)
27/5/22 5 fledged/total 12 (Aviary 2) and so on.

By maintaining records such as these, I can easily determine when a species breeds, which pairs are breeding and the accumulated total of chicks bred by a particular pair or species. By analysing the results after several seasons, patterns then emerge, and pairs that are not breeding are easily identified. I have collated seven years of data on my pairs of Pictorellas to demonstrate how the above form of record keeping can be beneficial.

PICTORELLA BREEDING SEASON

Pictorellas will build their own nests within dry brush or living vegetation. They will utilise a variety of fine and coarse grasses, such as swamp and November grass. The nest is an untidy dome with a side entrance. I have found the nest is only partly completed when the first eggs are laid, enabling a clear view into the nest, which will contain between 4-8 pure white eggs. As incubation continues, so too does the nest building, to the point where eventually the contents cannot be viewed any longer.

WHEN DO PICTORELLAS BREED?

When I lived in Victoria, I found the most favoured time was between November and April. However, over the past seven years, in South Australia, my Pictorellas have bred in all months, with most nests fledging in November, April and May. The following table shows the number of clutches and fledglings per month between 2018 and 2024.

2018-2024 Month	Fledglings per clutch	Clutches fledged	Total fledglings
Jan	3 5 3 6 2 2	6	21
Feb	7 2	2	9
March	7 2 2 1 3 1 1	7	17
April	2 4 6 6 4 5	6	27
May	4 7 4 2 1 5 3	7	26
June	8 3 3	3	14
July	2	1	2
August	1 1 4 3 2 1	6	12
September	2 2	2	4
October	3 3 3 7	4	16
November	4 4 6 5 1 1 4 3 3 4 1 3	12	39
December	4 4 3 2 2 4	6	19
Totals		**60 clutches**	**206 fledglings**

The table above highlights a great deal of valuable data. It demonstrates clearly, nesting frequency and clutch sizes throughout seven seasons. This type of data can help aviculturists to understand and make informed decisions about the management of their birds.

CONCLUSION

The Pictorella has long been a personal favourite avicultural species. It is a long-lived, hardy and peaceful finch that mixes well with other species. The only caveat is to ensure it is not intimidated from being housed in an overcrowded aviary or by other more boisterous species. If this is taken into account, the Pictorella can become a free breeder.

Personally, it has taken many years to truly understand this sometimes challenging species, and to date, the Pictorella has featured prominently in my avicultural writings and presentations. The status of the Pictorella in aviculture has historically always been lower than many of the other Australian grassfinches. Let's hope that there are always enough dedicated breeders to ensure the Pictorella can continue to grace Australian aviaries. I hope that this husbandry manual will encourage others to keep and successfully breed this unique Australian grassfinch.

The manual also explores the habits of the Pictorella in the wild. Here is a group drinking at a waterhole on Mornington Station, Western Australia

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THE WORLD THROUGH COL ROBERTS' LENS

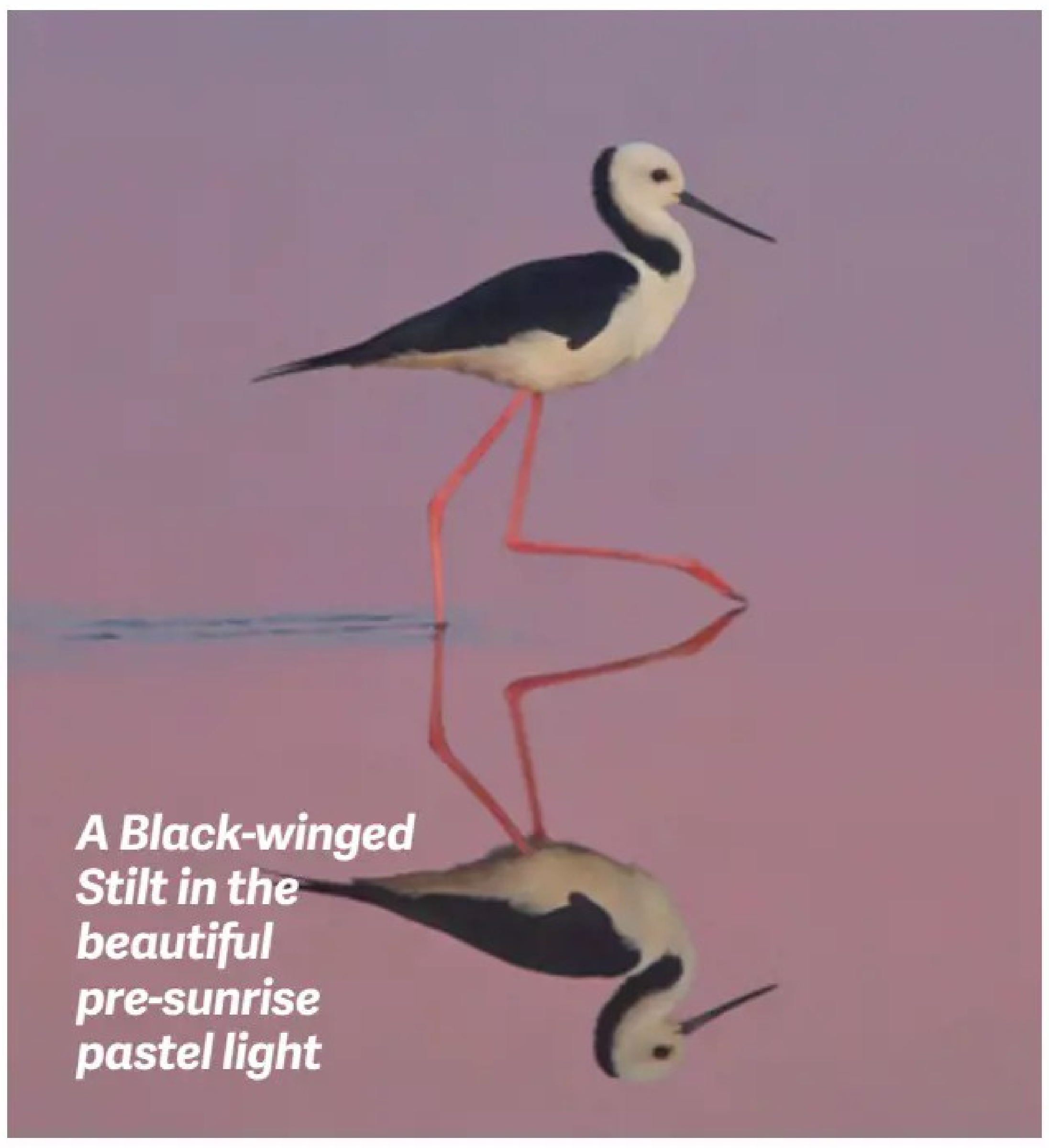
AUTHOR & PHOTOS
COL ROBERTS

COL Roberts is widely recognised as one of Australia's most accomplished wildlife photographers, with a special focus on finches. He is the author of two stunning coffee table books: Finches of Australia and Gouldian—The World's Most Beautiful Finch, both of which are available through ***ABK***. Col holds the distinction of being the first photographer to document and publish a comprehensive collection of images covering all Australian finch species and subspecies, an achievement that underscores his deep knowledge and passion for these remarkable birds. His expertise on Gouldian Finches in their natural habitat is regarded as unsurpassed.

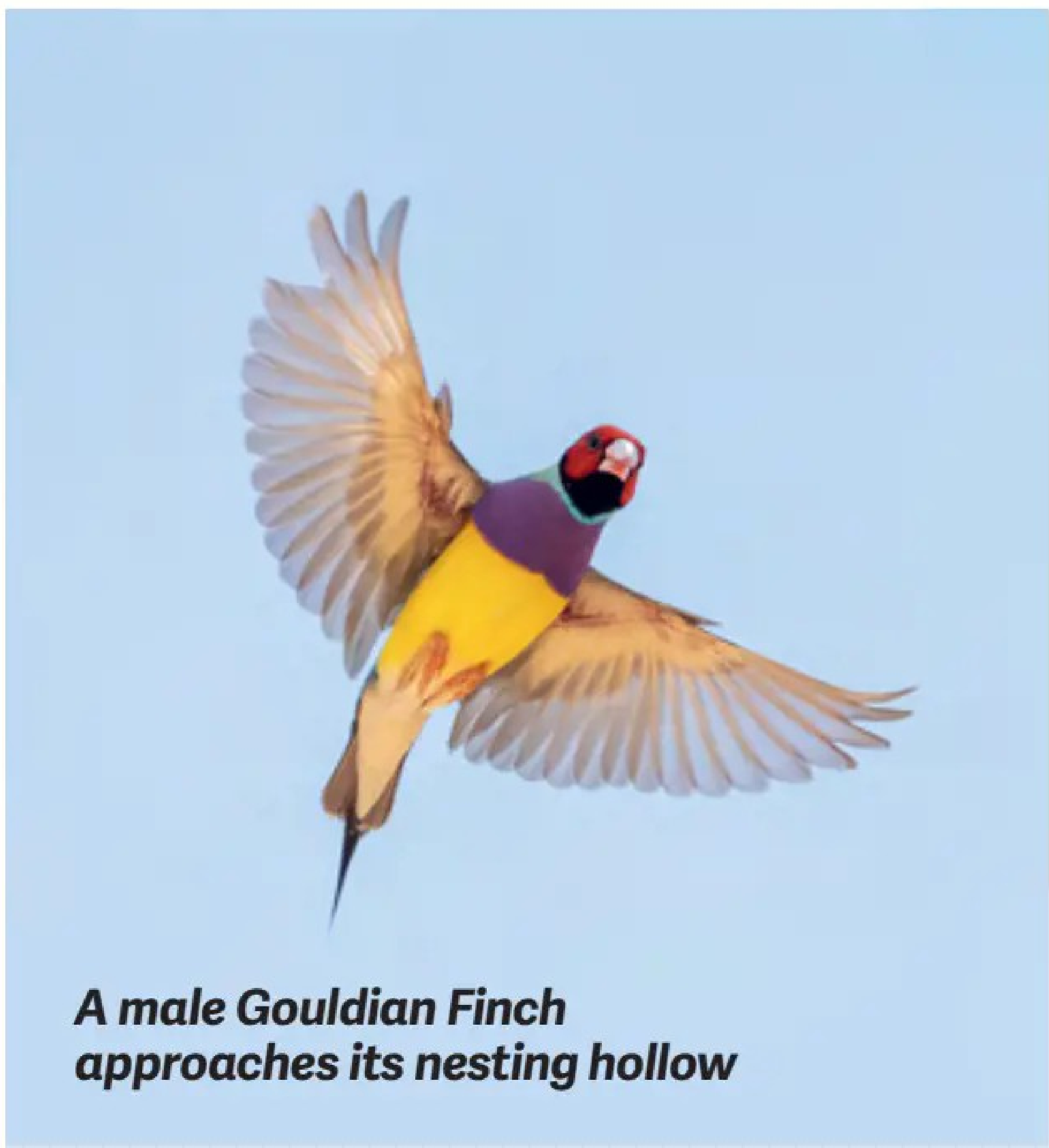
Driven by a spirit of adventure and a keen eye for the undiscovered, Col delights in locating new, often remote waterholes where no photographer has ventured before. Using modern technology such as Google Earth and drones, he identifies these hidden gems and captures breathtaking images that reveal the intimate lives of finches in the wild. When not searching for new waterholes, Col spends his time trekking through the rugged Kimberley hills, seeking out unique and captivating shots of Gouldian Finches nesting and feeding.

Col's photographic journey extends well beyond Australia. He is an avid traveller who enjoys venturing overseas to capture images of spectacular bird species and wildlife, primarily in the rich and diverse environments of South America and Africa. Through his lens, Col brings to life the beauty and wonder of nature's most extraordinary creatures from across the globe.

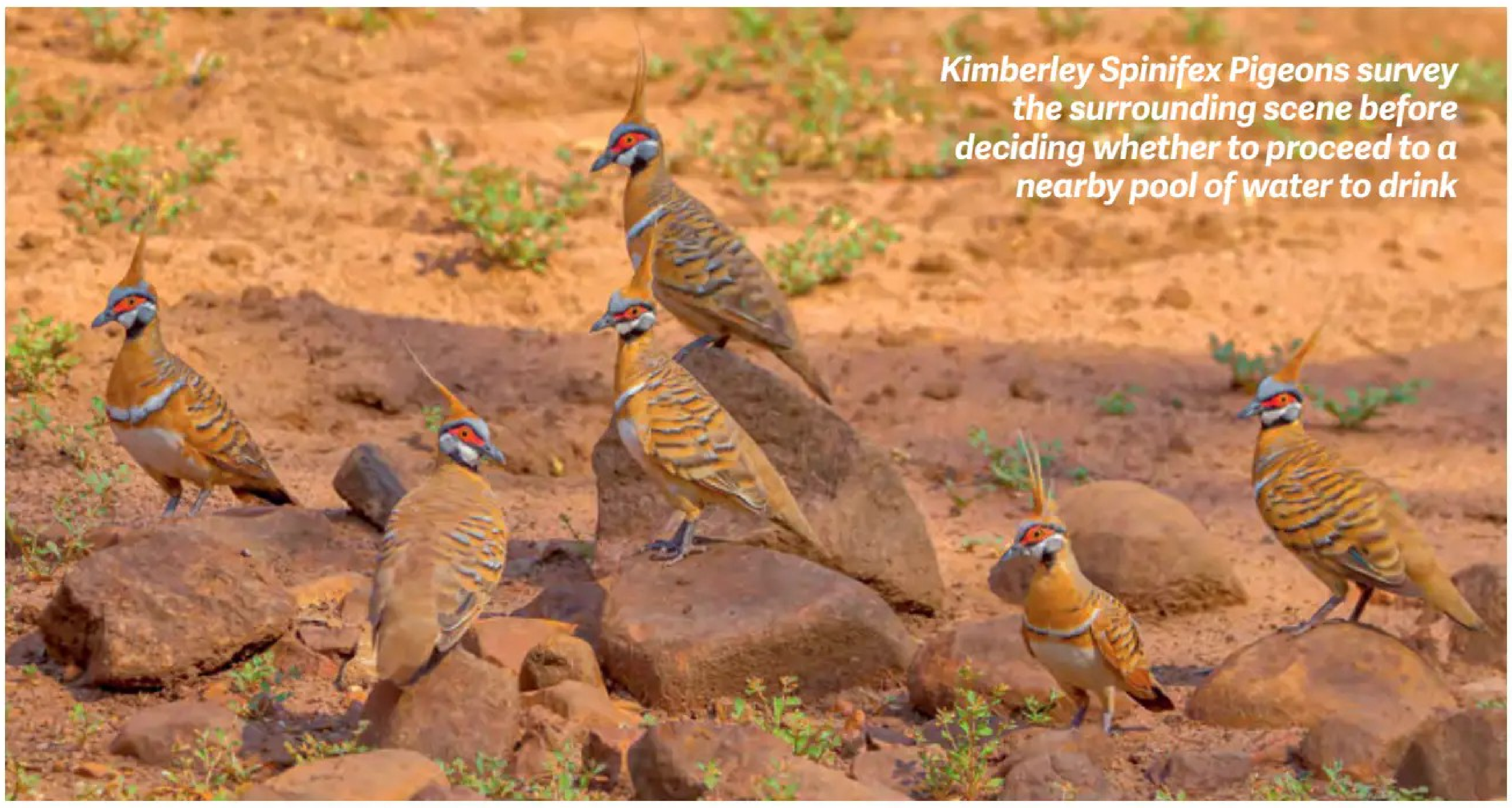
For those interested in exploring more of Col Roberts' stunning work, his extensive portfolio can be viewed on Instagram at @colrobertsphotography.



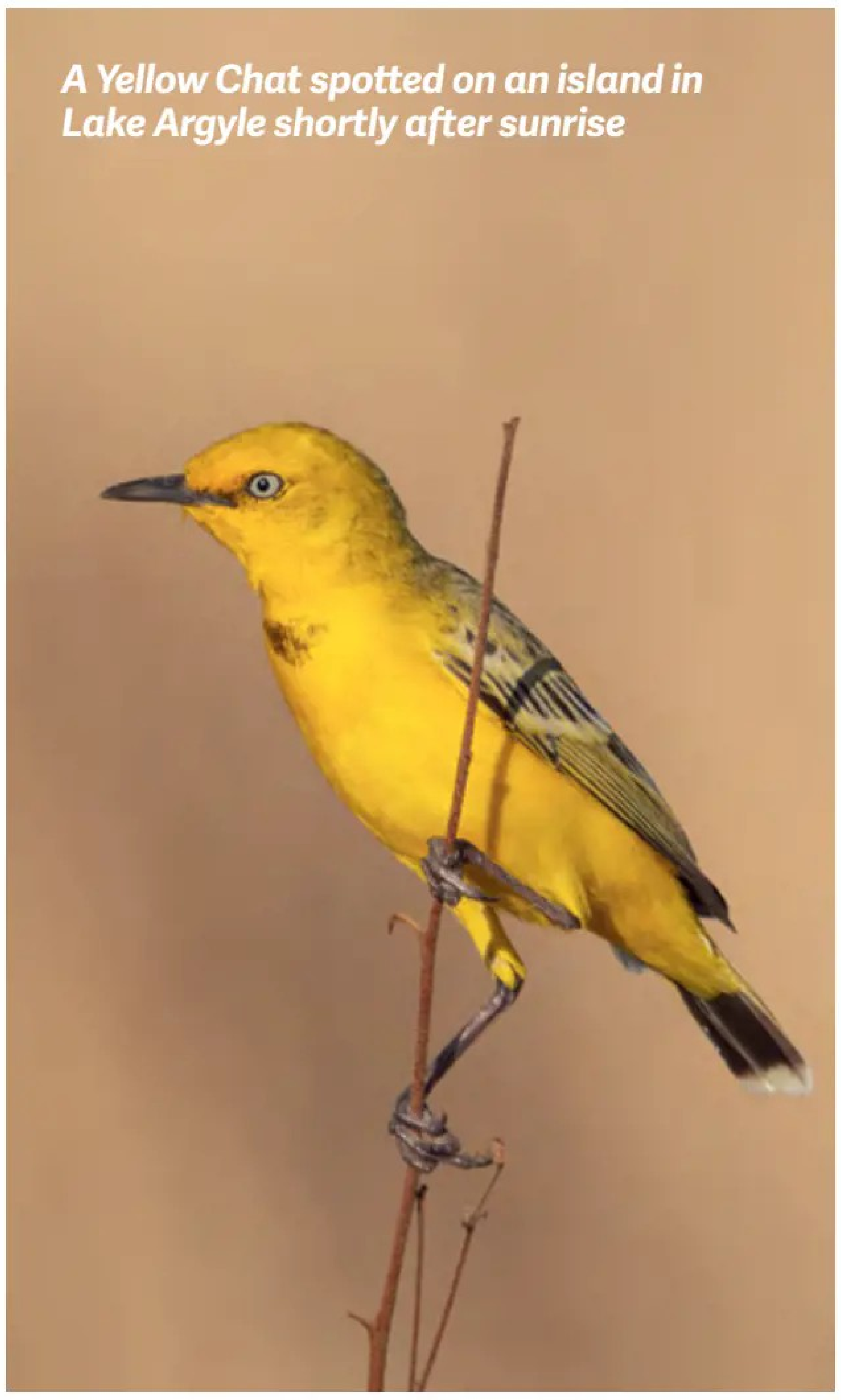
A Black-winged Stilt in the beautiful pre-sunrise pastel light



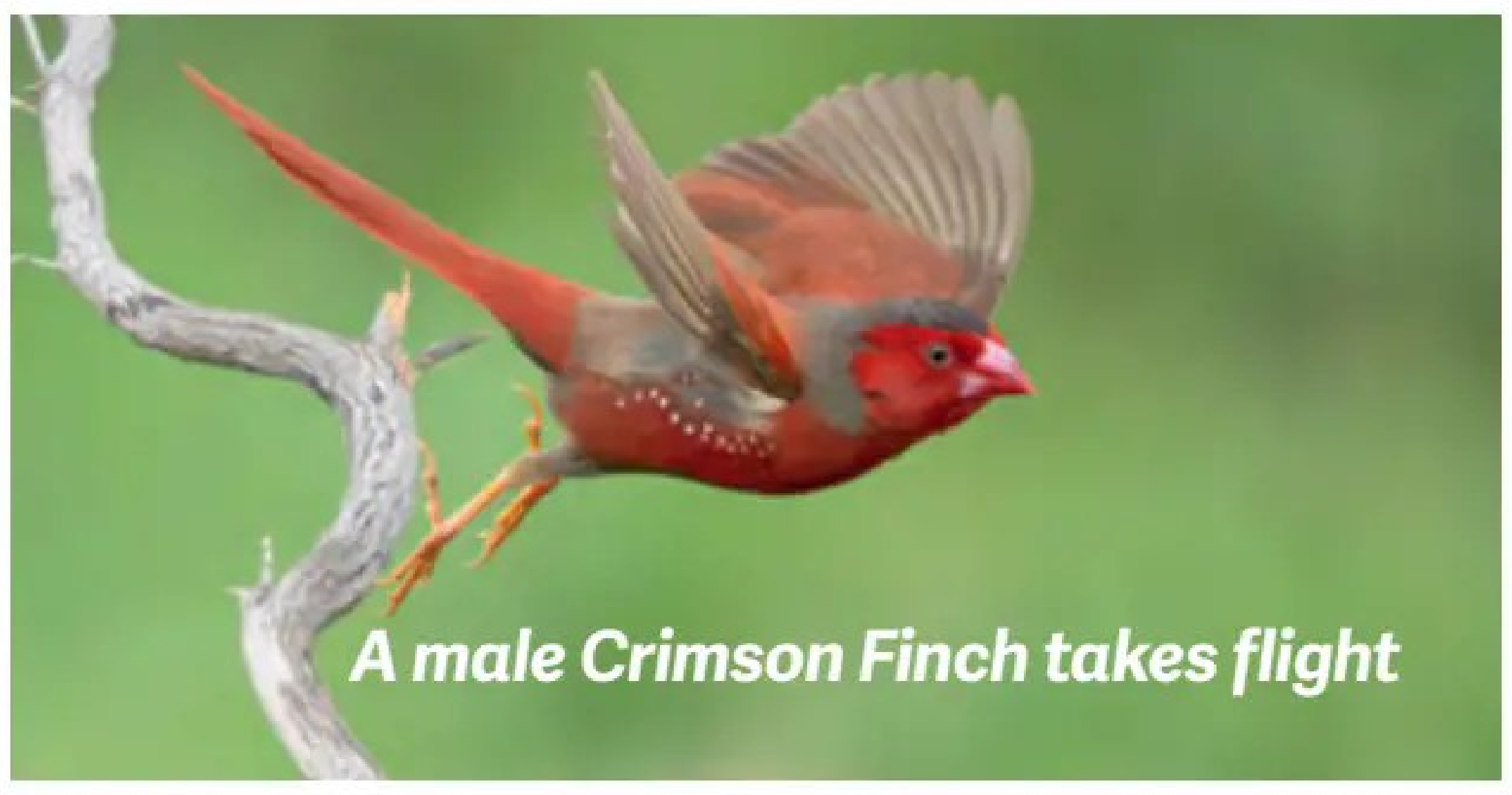
A male Gouldian Finch approaches its nesting hollow



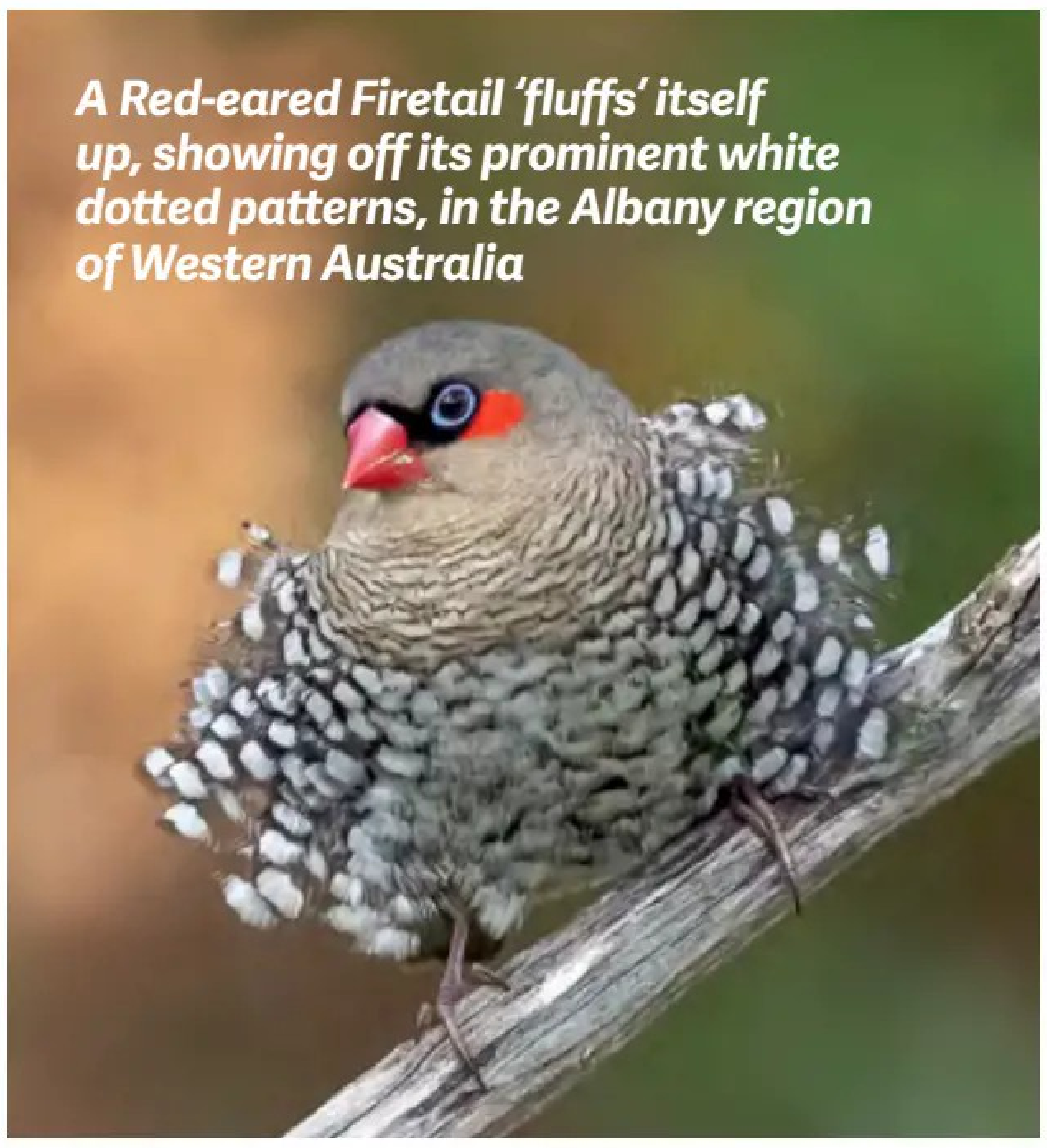
Kimberley Spinifex Pigeons survey the surrounding scene before deciding whether to proceed to a nearby pool of water to drink



A Yellow Chat spotted on an island in Lake Argyle shortly after sunrise



A male Crimson Finch takes flight



A Red-eared Firetail 'fluffs' itself up, showing off its prominent white dotted patterns, in the Albany region of Western Australia

A group of Northern Rosellas work their way down to a pool of water to take their first drink of the day

Male Gouldian Finches line up for an early morning drink, late in the dry season

A Booted Racket-tail Hummingbird turns side-on, revealing its spectacular split tail, tipped with the distinctive 'racket'-shaped feathers that give the species its name

Two Booted Racket-tail Hummingbirds feeding in unison

Buddies! A Gouldian Finch cozies up to a Peaceful Dove for safety, as they share an early morning drink

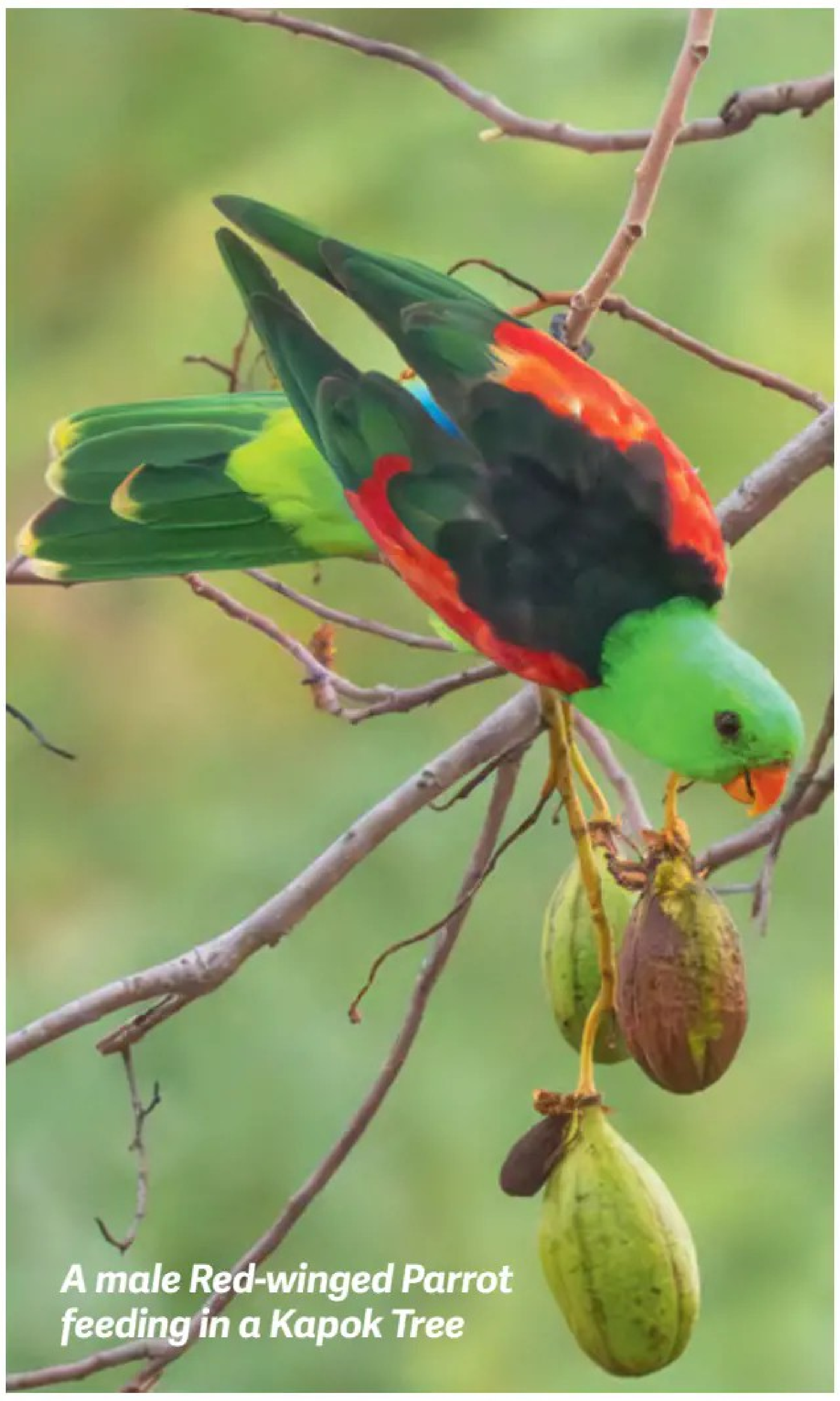
Double-barred Finches (black-rumped subspecies *Stizoptera bichenovii annulosa*) land on a log, before they fly down to drink

A male Gouldian Finch in full breeding plumage lands on a Golden Beard Grass seed head

Green-winged, Blue and Gold and Scarlet Macaws at a clay lick along Peru's Tambopata River

Late in the dry season, when much of the surface water has dried out, Magpie Geese congregate in huge flocks

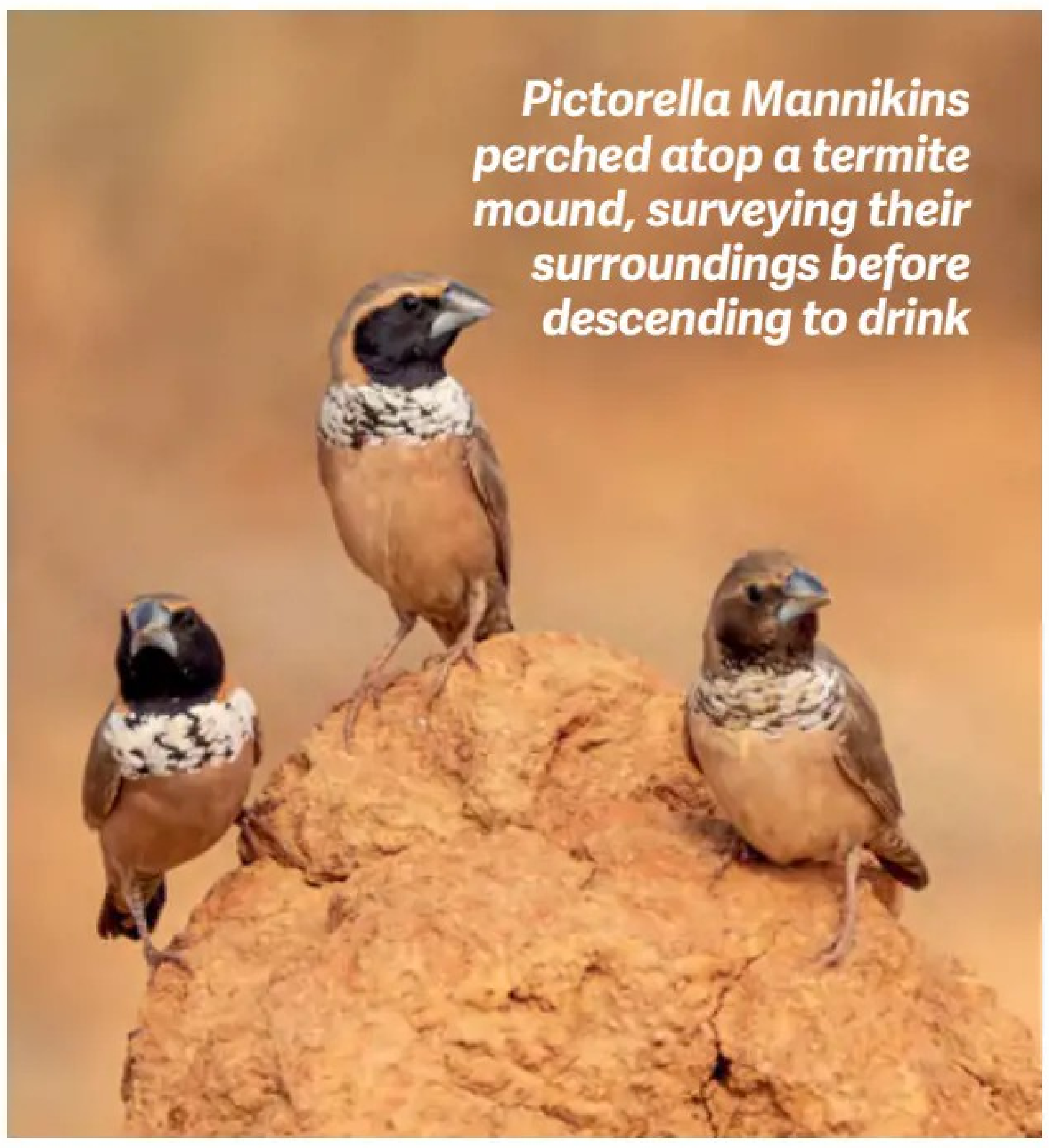
Pink Cockatoos are waiting for the right time to come down to drink, while Budgerigars circle in the background

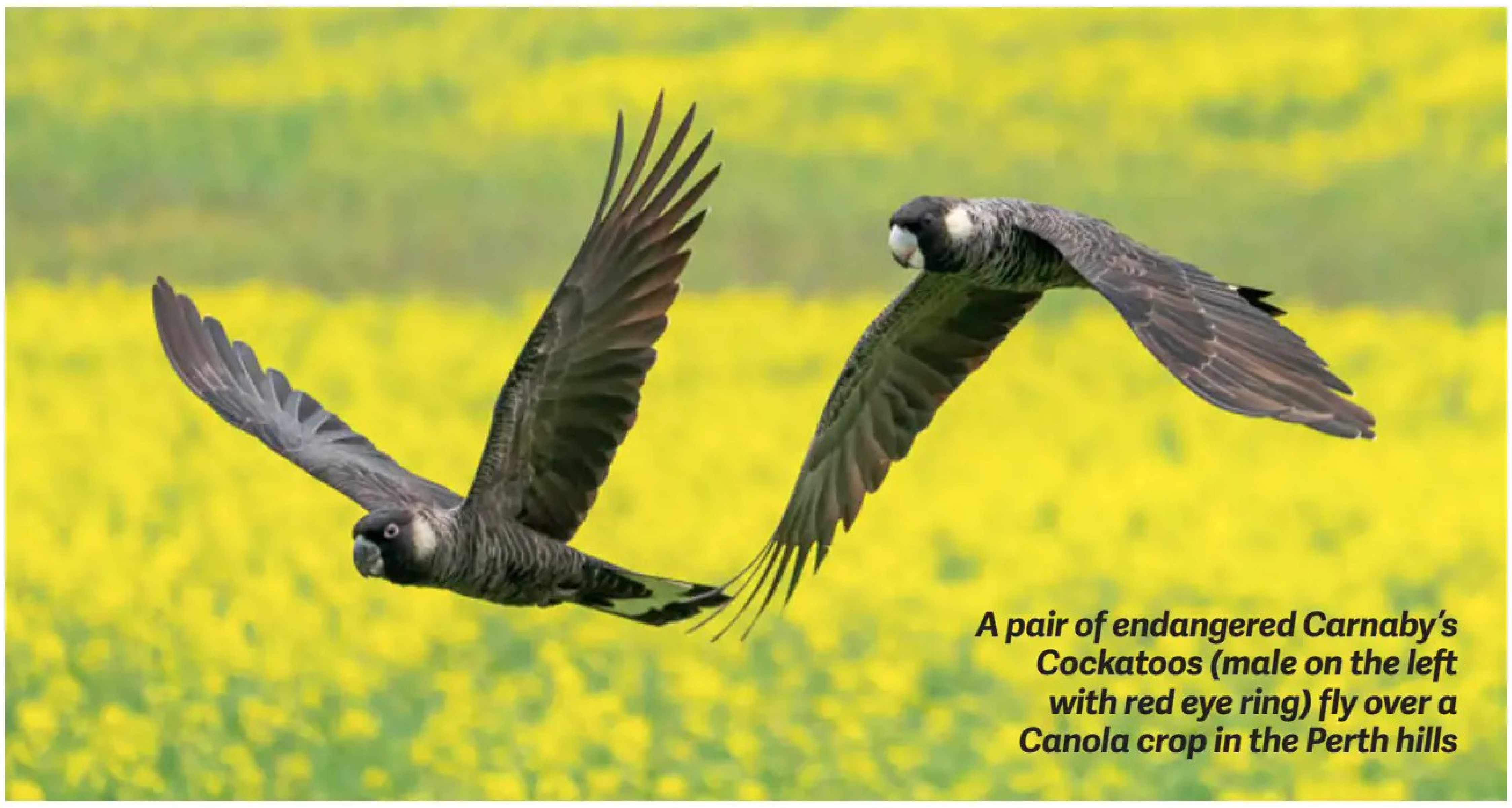


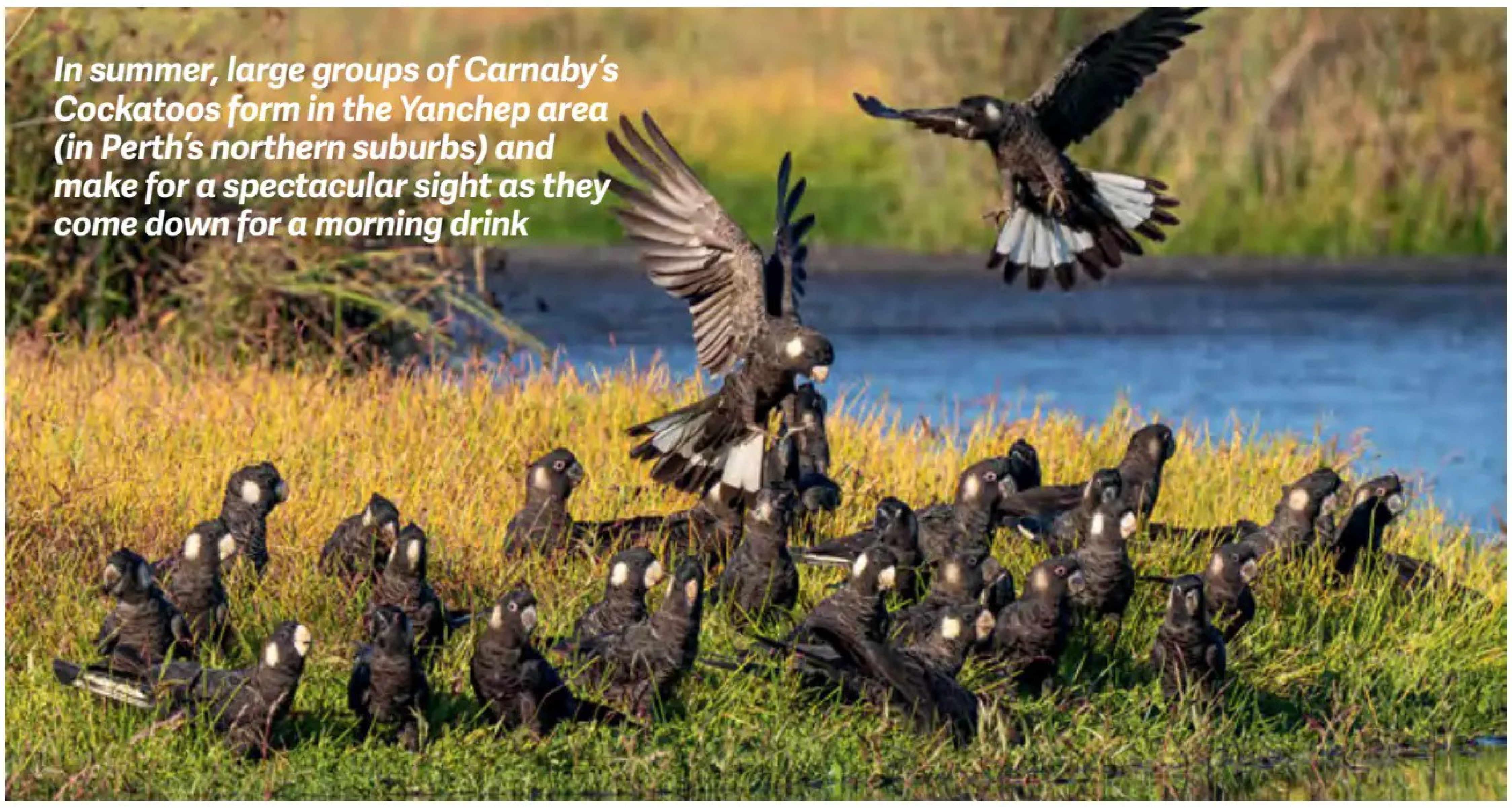
A male Red-winged Parrot feeding in a Kapok Tree

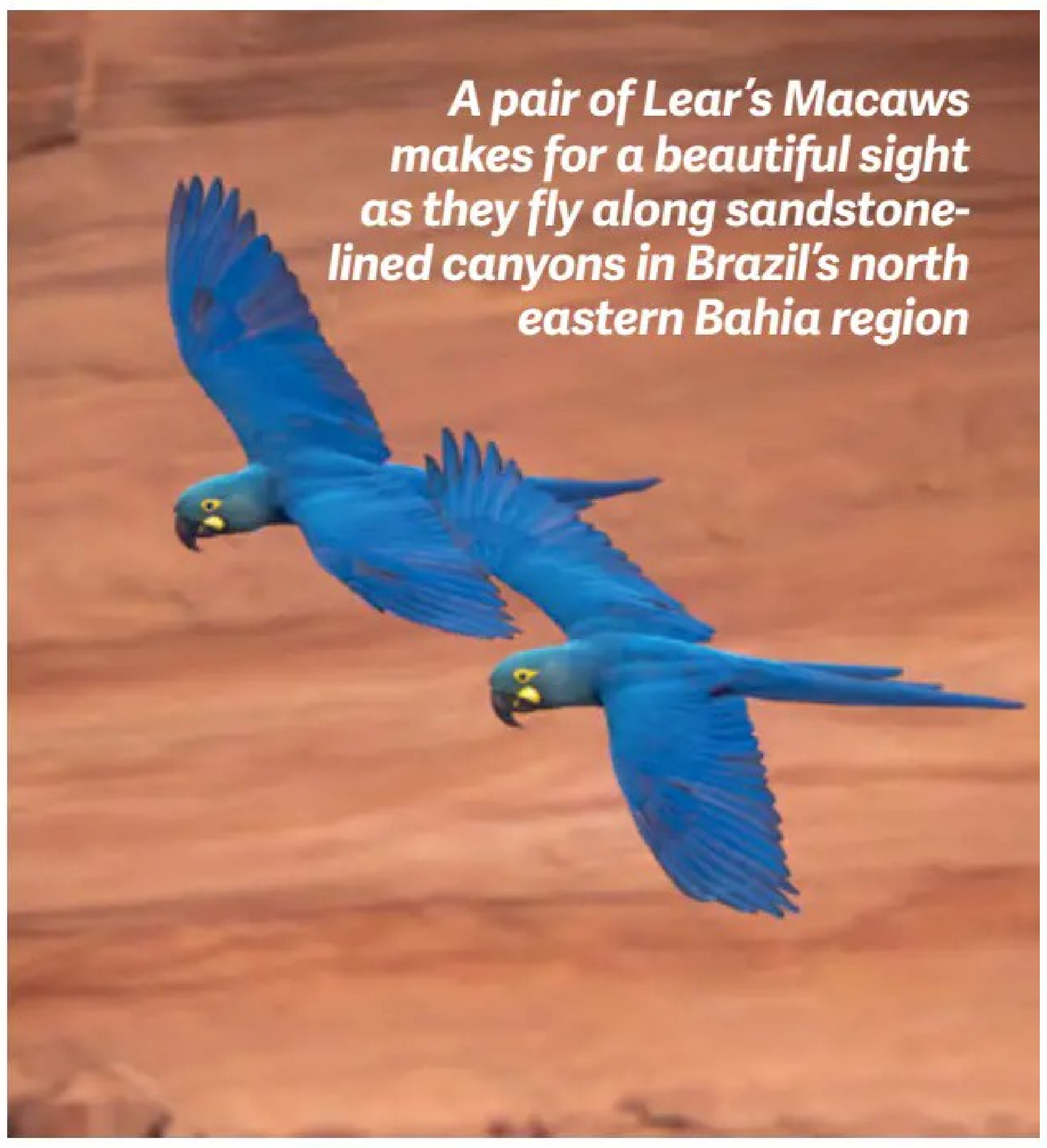
Male Star Finches feeding on Golden Beard Grass during the wet season in the Wyndham area

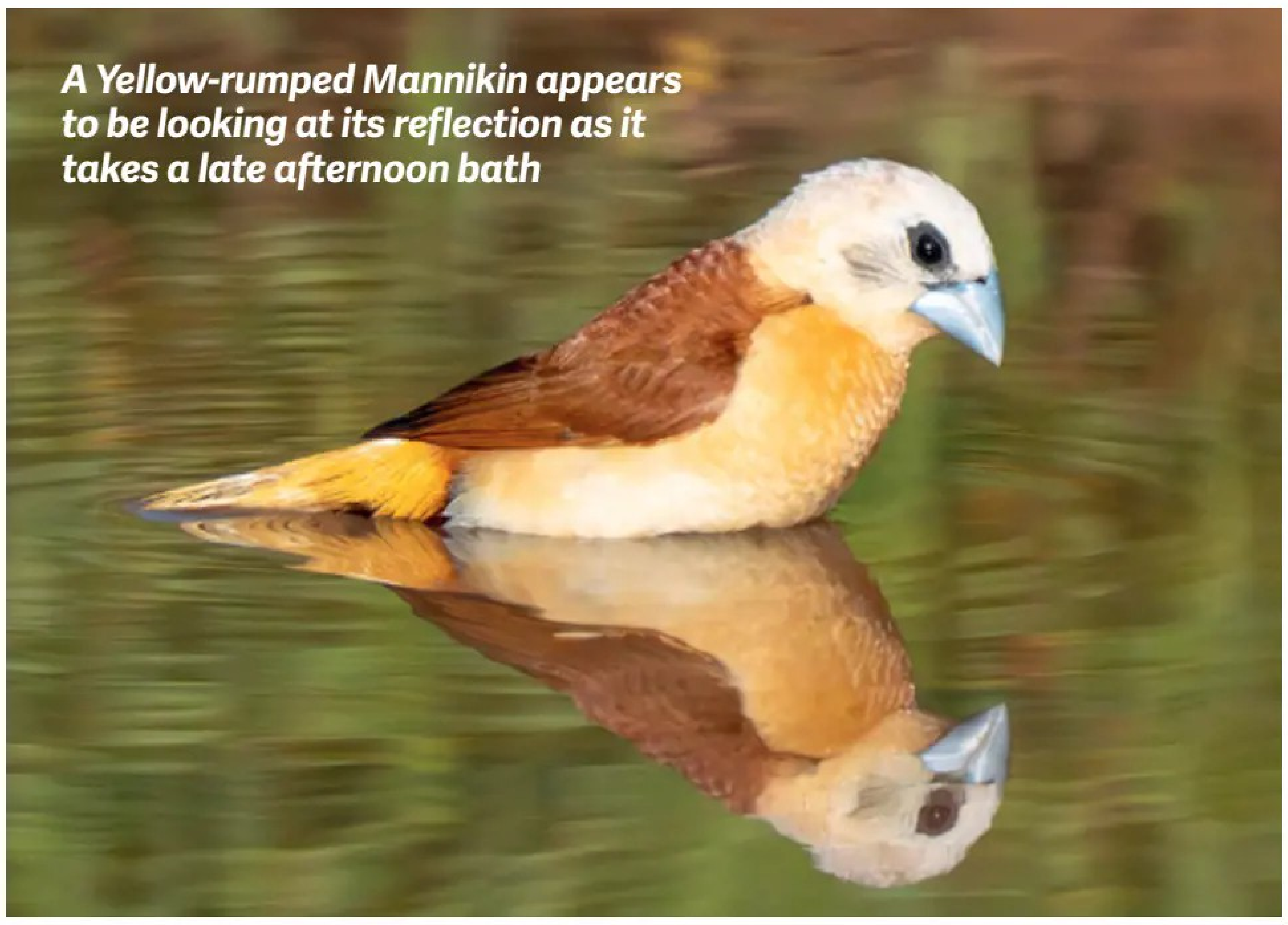
Now and then, when alarmed, the macaws fly from the clay lick to nearby trees before slowly returning

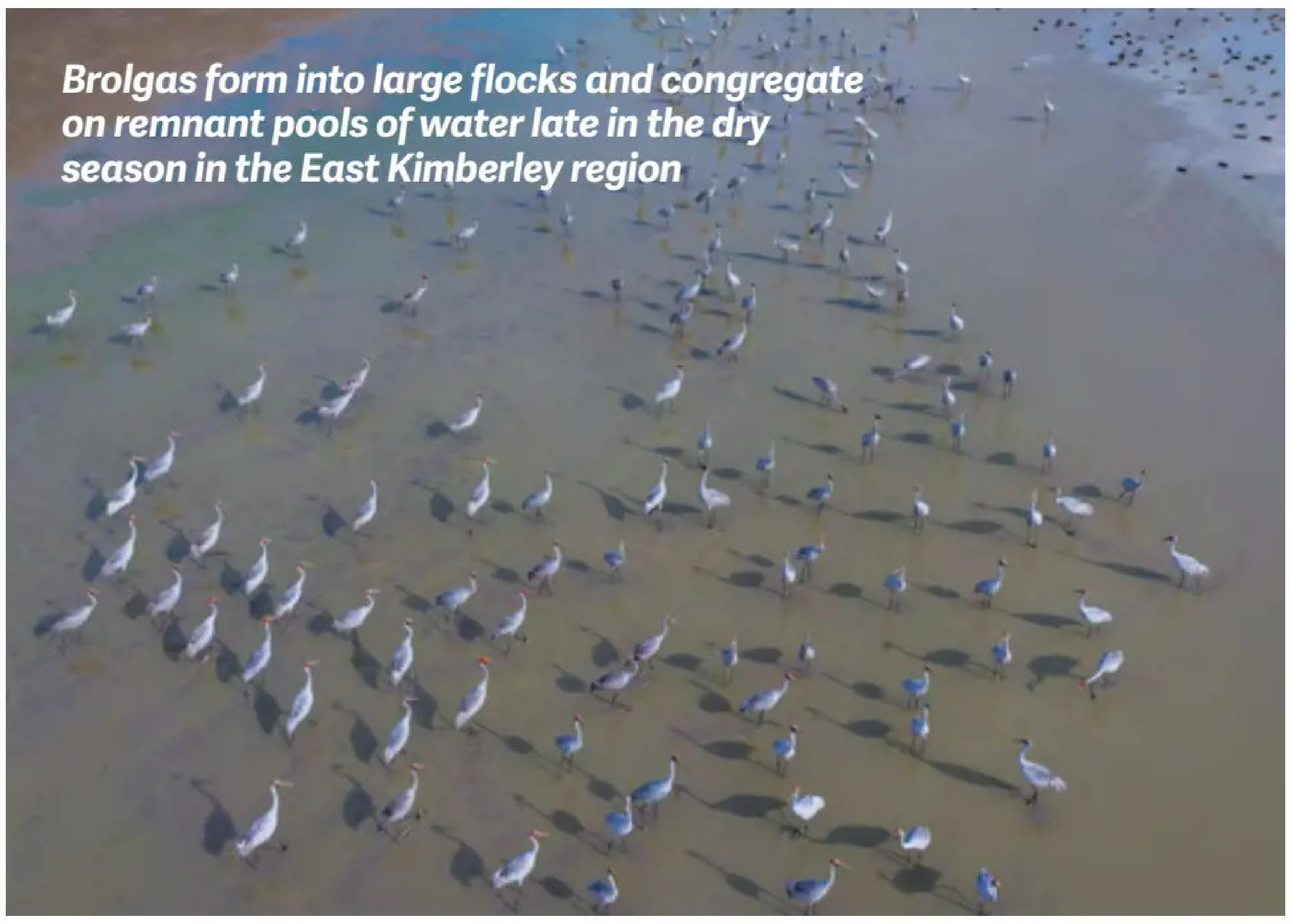

Pictorella Mannikins perched atop a termite mound, surveying their surroundings before descending to drink

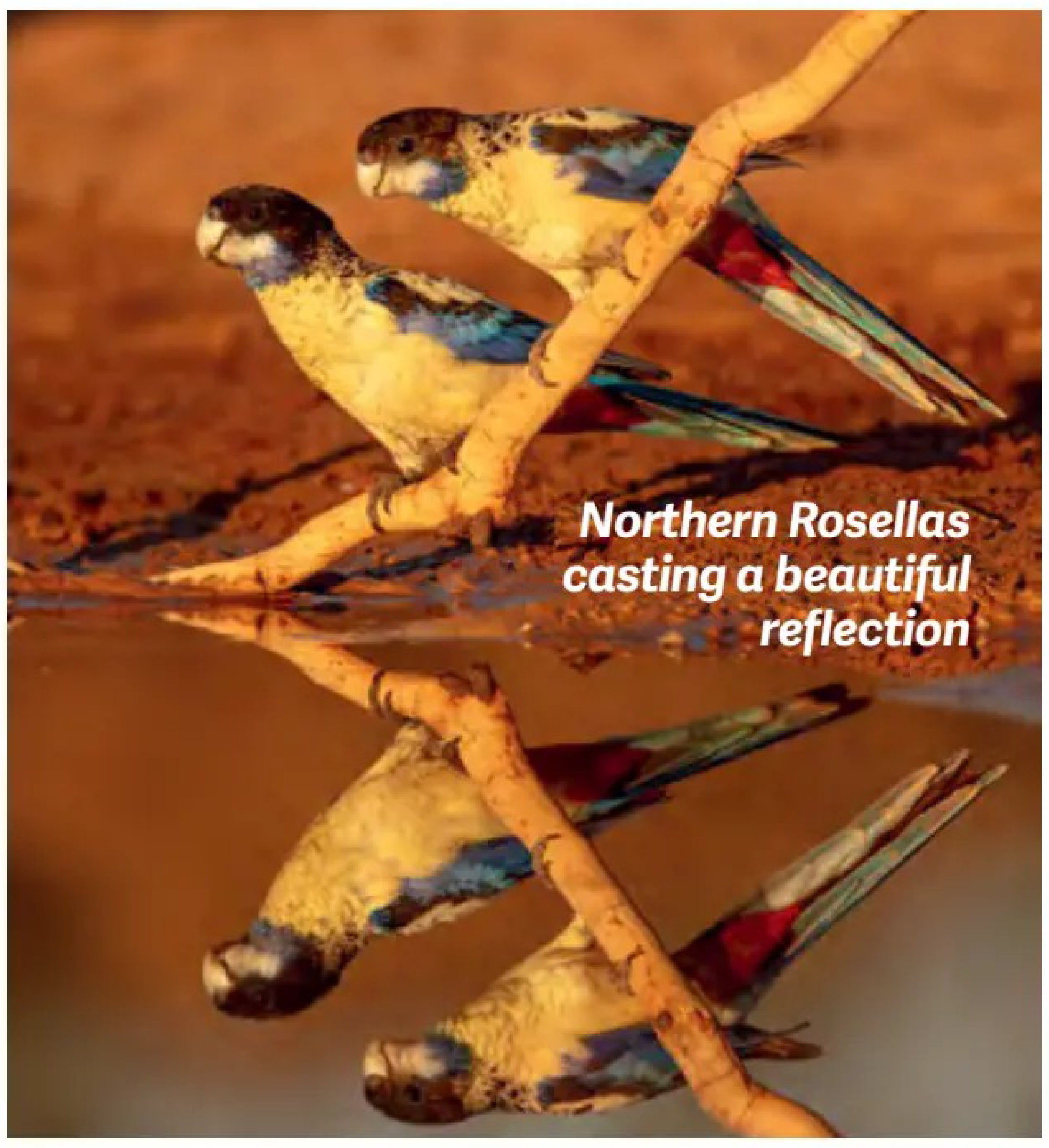

A pair of endangered Carnaby's Cockatoos (male on the left with red eye ring) fly over a Canola crop in the Perth hills

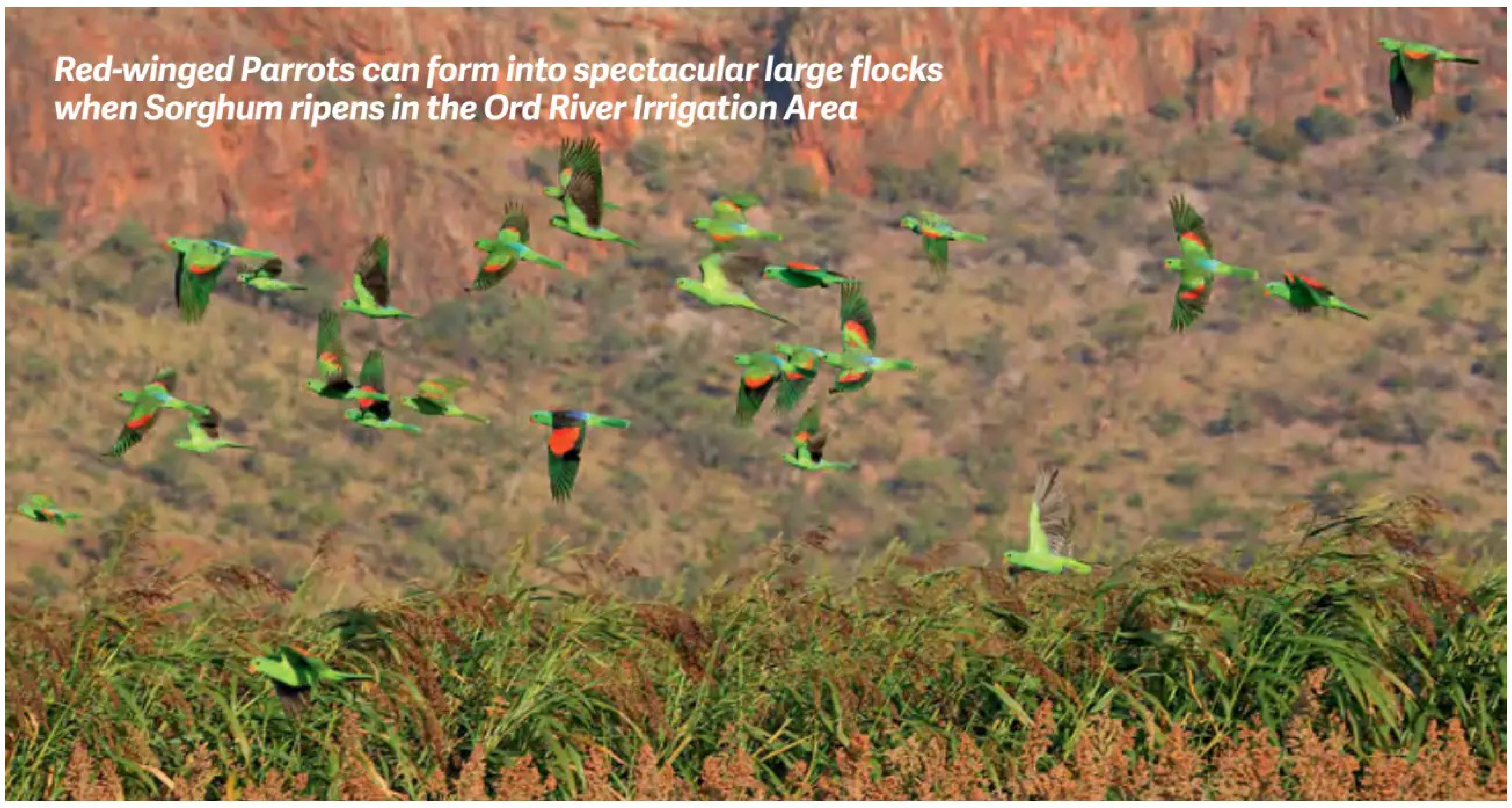

In summer, large groups of Carnaby's Cockatoos form in the Yanchep area (in Perth's northern suburbs) and make for a spectacular sight as they come down for a morning drink


A pair of Lear's Macaws makes for a beautiful sight as they fly along sandstone-lined canyons in Brazil's north eastern Bahia region


A Yellow-rumped Mannikin appears to be looking at its reflection as it takes a late afternoon bath


Brolgas form into large flocks and congregate on remnant pools of water late in the dry season in the East Kimberley region


Northern Rosellas casting a beautiful reflection

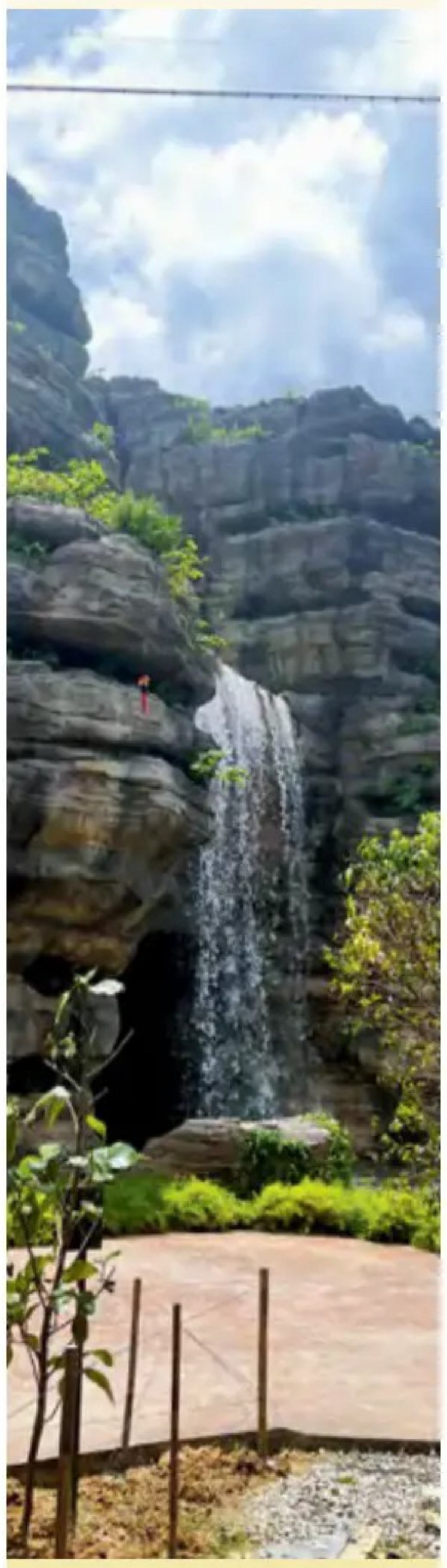

Red-winged Parrots can form into spectacular large flocks when Sorghum ripens in the Ord River Irrigation Area

Pin-tailed Whydah; male in full breeding plumage, photographed in the late afternoon light
PHOTO MERVYN SOON

BirdKeeper Tour 2025 Review

BIRD PARADISE SINGAPORE AND BALI: HEAVEN FOR BIRD LOVERS

AUTHOR
SAM DAVIS



Waterfall at Bird Paradise
PHOTO SAM DAVIS

OUR ***BirdKeeper*** Tour 2025 was a fantastic event. I'm confident that all who came along for the ride would agree that it was a huge success. The highlight events were visiting Bird Paradise in Singapore and attending the Bali Bird Congress at the beautiful Prama Sanur Beach Hotel. Bird Paradise in Singapore should be on all bird lovers' bucket lists, but some of the other attractions are not far behind.

SINGAPORE

Hannah and I, as the organisers, breathed a sigh of relief when all members of the group had safely made their flights and were checked into their rooms in the Peninsula Excelsior Hotel in Singapore. The hotel had been rebadged into the Wyndham Singapore Hotel in the preceding days—it might have even occurred whilst we were in the air, so there was some confusion, which was all resolved with smiles—the hotel was great.

BIRD PARADISE

Day one was, of course, Bird Paradise, our main reason for visiting Singapore. Thanks must go to Haniman Boniran of Bird Paradise for his terrific tour and vast knowledge of all species. As regular ***BirdKeeper*** readers will know, this park has replaced Jurong Bird Park. The new park is largely composed of 8 large habitat aviaries, and when I say large, I mean massive. You forget you are in an aviary, it feels like you are in a slice of the actual habitat, the atmosphere is that authentic.

We had scheduled a single day for Bird Paradise; however, with over 400 species and 3500 birds, it was clear we would not be able to see all of them. For this reason, we'd left the following morning free—a few of the more photographically minded members of the group returned to the park. Don't worry, there will be further articles on Bird Paradise to come. From an economic perspective, it is incredible that the Singaporean Government has seen fit to support such an amazing, dedicated bird park when so many others around the world are struggling financially. It truly is a must-visit for any bird lover, so do yourself a favour and book a trip to Singapore!

THE OTHER PARKS

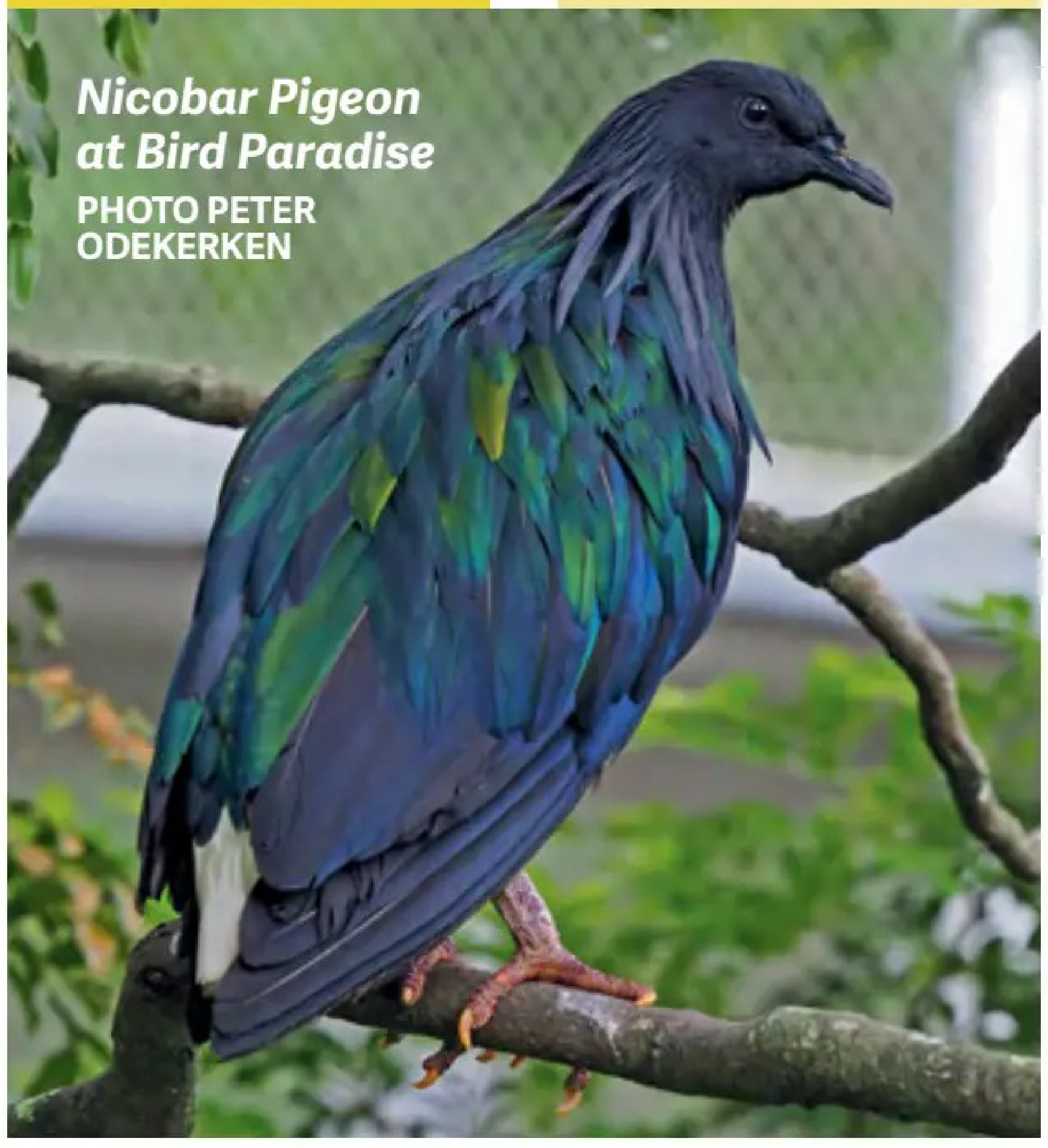
During the following days in Singapore, we visited the other parks within the Mandai Wildlife Reserve, namely River Wonders, Night Safari and Singapore Zoo. When organising the tour, we were not sure if it was necessary to visit all parks, however, it is worth the effort. Each has its own distinct exhibits and focuses on and tells the wildlife and conservation story from different perspectives. One highlight for me was seeing an actual live Pangolin. I've visited numerous zoos across the globe, and somehow, despite there being numerous Pangolin exhibits, I have never previously seen one. I contemplated buying a stuffed Pangolin at the gift store—why didn't I?

The various park visits were interspersed with other events, many centred on food. The highlight was a seafood meal opposite the Marina Bay Sands, also known to me as 'The Surfboard'. We had to try the famous Singapore chilli crab; it did not disappoint. A messy meal, and it was clear who had enjoyed it the most based on the state of the tablecloth under their plate!

BIRDSINGING CLUB

Another highlight, and one you should consider when in Singapore, is a visit to the Kebun Baru Birdsinging Club. Birds are displayed in ornate cages hanging in rows. The main species present were White-eyes presumed to be *Zosterops* simplex, White-rumped Shamas *Copsychus malabaricus* and Zebra Doves *Geopelia striata*, along with some Magpie Robins *Copsychus saularis* and a few Canaries. The Shamas, Magpie Robins, and Canaries are well known for their singing. The White-eyes and Zebra Doves are closely related to the Silvereyes *Zosterops lateralis*, and Peaceful Doves Geopelia placida, respectively, that I have wild on my property. I'd never thought of either as songbirds.

Competitions are held on Sundays, so the best time to visit the club is Sunday morning, and even if no competition is scheduled (which was the case when we visited), you can be assured there will still be hundreds of songbirds on display. I should mention the local hobbyists were incredibly welcoming and only too pleased to share details of their hobby.



Nicobar Pigeon at Bird Paradise
PHOTO PETER ODEKERKEN

Hannah enjoying the Bali Bird Park
PHOTO MICHELLE GABRIELLA

Members of the tour group at Bird Paradise
PHOTO HANIMAN BONIRMAN

BirdKeeper's Sam Davis and Hannah Murray at the Bali Bird Congress
PHOTO MICHELLE GABRIELLA

The Lory Loft aviary; additional daily feeds allow visitors to get close and take images of birds sitting on them
PHOTO PETER ODEKERKEN

The walk-through aviaries at Bird Paradise are truly enormous
PHOTO PETER ODEKERKEN

BALI

The flight from Singapore to Bali is just under 3 hours, so very short for us Aussies who are used to back-to-back 10-hour flights to reach many destinations. We arrived at Denpasar airport on the island of Bali to find we had only lost one member of our group! It was a bit of a drama trying to ring and text message with no response. The problem was solved when he was located having a local SIM card installed in his phone. The airport transfer through the streets of Bali is always a highlight for those who've not visited the island previously—motorbikes, people, congestion that all seems chaotic but somehow works. The people in Bali are so calm, lovely and helpful—it feels incredibly safe.

We stayed at the Prama Sanur Beach Hotel, which doubled as the venue for the Bali Bird Congress 2025. What a terrific resort—highly recommended and very reasonably priced, as is the case for Bali generally. Well over 250 delegates and their partners attended the congress from all over the planet. The difference, from my perspective, was the number of delegates attending from Asian countries. It was terrific to meet and learn about the growth and popularity of aviculture throughout the region. Some of the conversations and presentations centred on this aspect, and it is a real opportunity for Australian aviculture if we can just get our border controls sorted into some semblance of reasonableness—I won't go over the details here as I've addressed the issues in previous columns and will continue to do so in future columns.

There were numerous speakers from all over the planet—too many to list or critique here, but something for everyone and every interest. Congratulations to the organisers for assembling such a wealth of talent on such a broad range of topics.

CONFERENCE HIGHLIGHTS

Some conference highlights for me included a presentation on DNA colour mutation testing by Belgium vets from NeorniLab. The ability to test for splits will have amazing ramifications for those establishing new mutations. We must get them to write for ***BirdKeeper***. Hearing from the local border officials in Indonesia was also of interest to me—they seemed rather oblivious to many obvious realities, much like their counterparts in Australia and other parts of the world. Perhaps the most motivational talk was from the owner and founder of Amazonas Park in Crete. As kids, I suspect many of us dreamt of owning a bird park. Well, Patricio Do Nascimento and his partner have done it!

EXCURSIONS

The conference included a range of excursions for both breeder delegates and their partners. It sounds like many of the excursions for partners were amazing, and I must return to the island to explore its natural wonders and to be pampered sometime. Highlights for breeder delegates included afternoon visits to the local Anak Burung Tropikana (ABT) Bird Farm and Bali Bird Park.

ABT Bird Farm is owned by the organisers of the conference and has some amazing species on display and for sale. Unfortunately for us Australians, imports into our country are currently not possible, so it was all about adding to an 'if only' wish list. For me, the hornbills are high on my list—we have no hornbills at all in Australian aviculture currently. Seeing the different subspecies of Eclectus Parrot in adjoining aviaries was educational in terms of making comparisons and was another personal highlight. To see the range of captive-bred and established cockatoos, lories, fig parrots, softbills, etc., available to most of the planet, but not Australia, motivates me to continue lobbying our Australian Government.

Bali Bird Park was a pleasant surprise for me. For some reason, I held the view that it was a small, unimpressive facility—not so. It comprises many walk-throughs and other aviaries with a broad range of species on display. The free flight show was great with macaws circling, and buzzards plucking mealworms from the air, all with a clear conservation message. There are plenty of opportunities to get close and personal—holding a Palm Cockatoo, Amazon parrot or even a hornbill is a great photo opportunity. The birds-of-paradise are always a highlight for me—my favourite was the King Bird-of-Paradise *Cicinnurus regius*. I even managed to get a video of them on my phone. This park is worth a visit for everyone holidaying in Bali.

BEFORE WE HEADED HOME

Before our flights home, we visited the bird market precinct in Bali. Quite an eye opener and worth a visit if you've not done so. The stallholders I spoke with have incredible knowledge of every species on offer, both in terms of husbandry and detailed natural history knowledge. There are, of course, numerous local species which are incredibly cheap and not kept to the standard I expect. Surprisingly, there were also many captive-bred species, some quite valuable even by Western standards, and retailing for similar or even higher prices than we see in Australia. Visiting the precinct firsthand was important to me, so I could critically and factually assess the various comments I've read and heard about Asian bird markets.

A REGULAR EVENT

The organisers of the Bali Bird Congress intend the conference to be a regular event. There is talk of 2027 for the next one. I recommend you jump at the chance. To spend a week learning about birds, looking at birds and perhaps most importantly, talking to experts from all over the globe who share your passion is one of life's great pleasures.

FINAL COMMENTS

I hope the above brief overview of our ***BirdKeeper*** Tour 2025 has motivated you to consider jumping on board with us for future tours and signing up to attend conferences. The Queensland Finch Society's Finches '25 conference is being held in Brisbane in early July—why not register? ***BirdKeeper*** is thinking of tours through Africa, another to the Caribbean, including Panama, and of course, a trip to Europe, perhaps including the Loro Parque Parrot Congress. Please email birdkeeper@birdkeeper.com.au if you have any ideas or preferences for locations or events we should consider.

Understanding Bumblefoot

(PODODERMATITIS)

IN CAPTIVE BIRDS

AUTHOR & PHOTOS
PROF BOB DONELEY
BVSc FANZCVS (Avian Medicine)

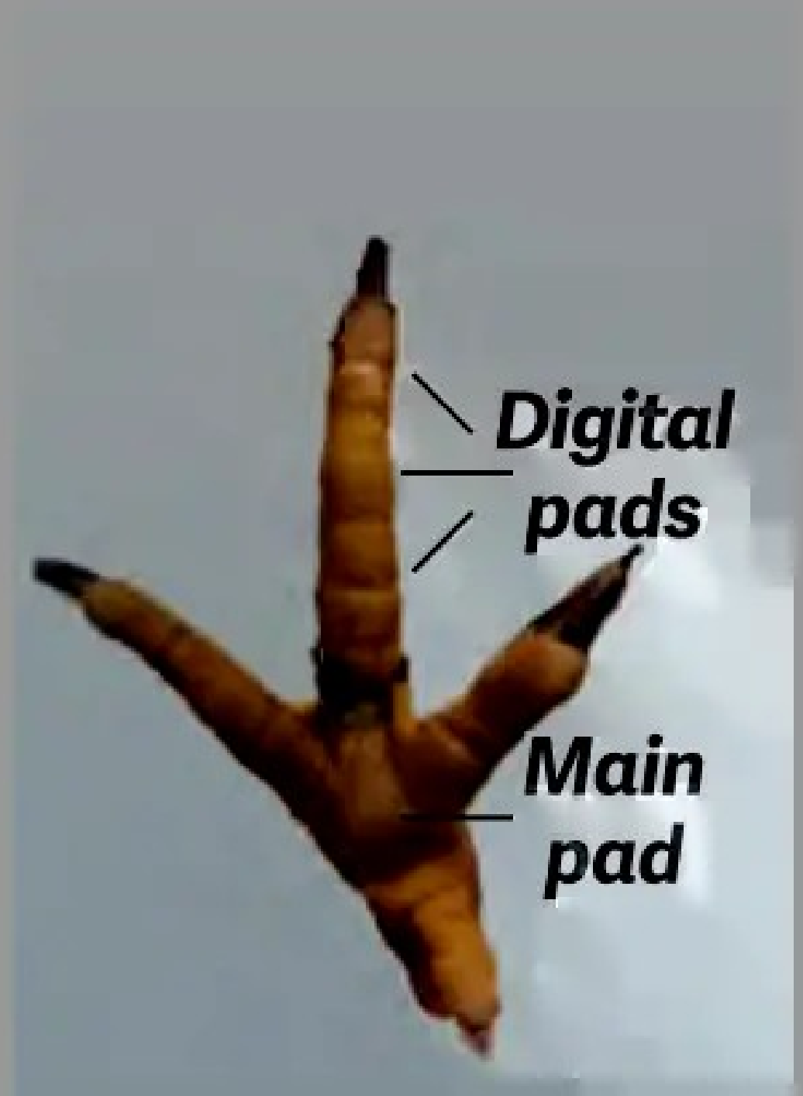


Figure 1. The sole of the foot, showing the main pad and the digital pads (chicken)

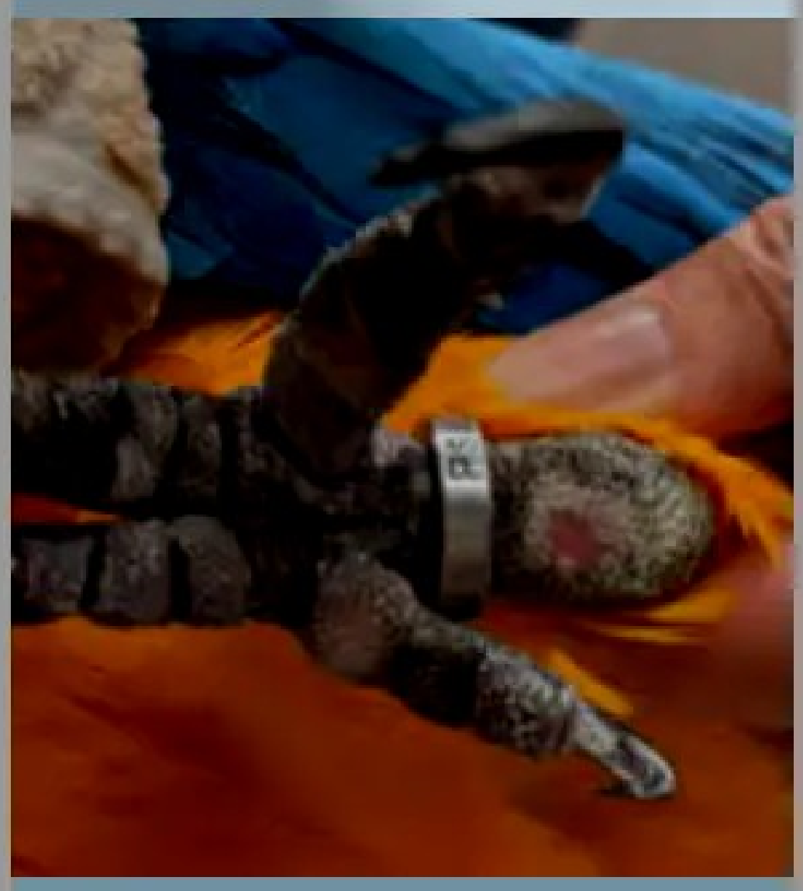


Figure 2. Early Pododermatitis in an overweight macaw, class I-II

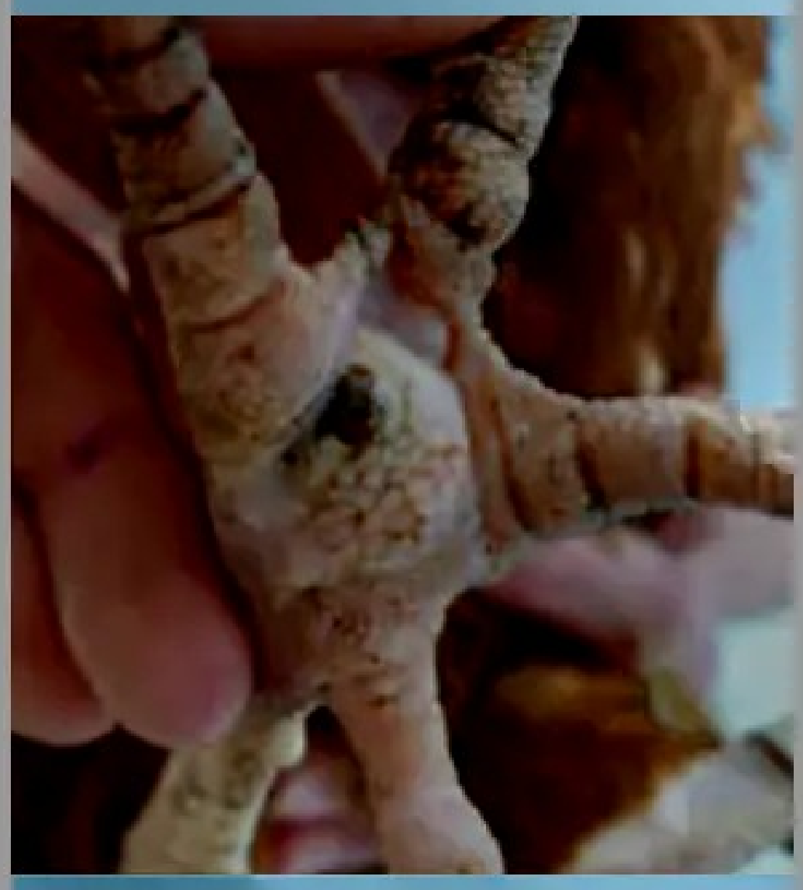


Figure 3. Class II Pododermatitis in a chicken (early)

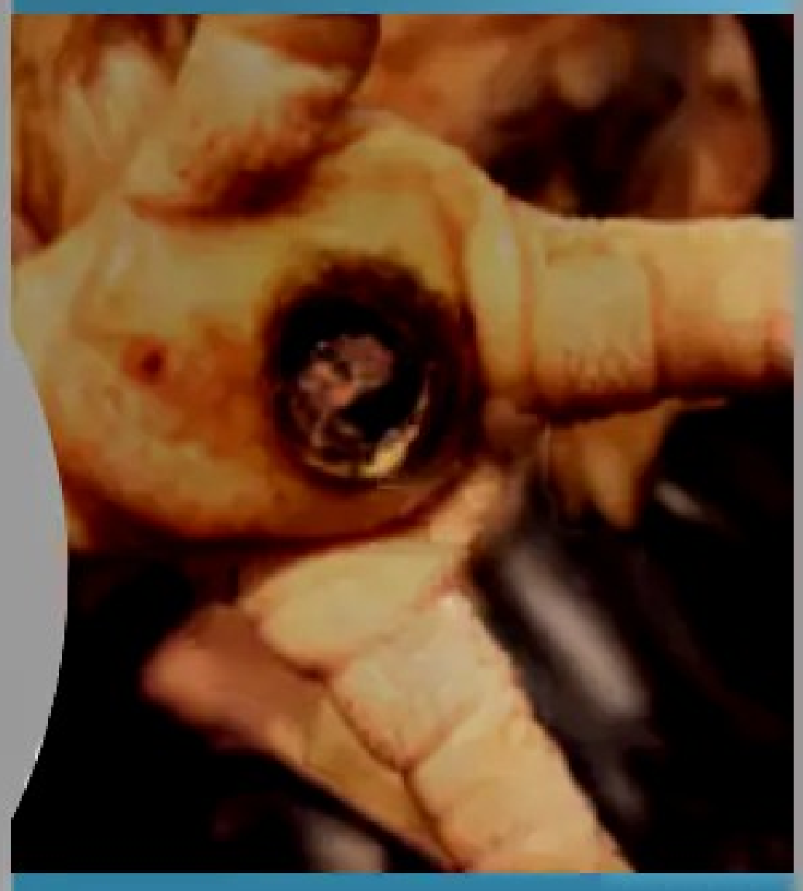


Figure 4. Class IV-V Pododermatitis in a chicken (chronic, severe)

MANY health conditions in birds are sometimes referred to as 'diseases of captivity'. These are health problems rarely, if ever, seen in wild birds. Mind you, we must acknowledge that some of these 'diseases of captivity' may not be seen in wild birds because they would have an immediate—and negative—impact on a wild bird's ability to survive.

The assumption (usually correct) is that these 'diseases of captivity' arise because of the relative confinement and limited dietary choices that come with close association with people. Some of these problems include obesity, heart and cardiovascular disease, diabetes, arthritis, some forms of cancer, many reproductive diseases, and so on.

The problem I want to discuss today is undeniably a 'disease of captivity'. *Pododermatitis*, also known as 'bumblefoot', is an inflamed and often infected lesion on the sole of the foot. It is commonly seen in pet birds, especially parrots, but is also frequently seen in chickens, waterfowl, finches, doves, and captive raptors. And can be seen in other species as well, especially gallinaceous birds and passerines. It is rare or non-existent in wild birds.

THE ANATOMY OF THE SOLE OF THE FOOT

The sole is protected by a thick layer of tough skin, which in turn is covered by a layer of keratin. Over the surface of this keratin is a layer of papillae (small, raised structures), which are thought to spread the load on the foot evenly over the weight-bearing surfaces. This skin covers the whole surface of the underside of the foot but is thickest over the pads on the toes and directly under the leg itself. (Figure 1)

The integrity of this skin barrier is maintained by a healthy diet, plenty of exercise (which maintains good blood circulation as the pads are compressed and relaxed while walking), and a clean environment (because potential pathogens do not concentrate in any one area in the wild). The constant extension and flexing of the joints in the foot when walking on uneven surfaces or different perch sizes also contributes to the health of the bone, joints, tendons, and blood circulation.

WHAT CAUSES BUMBLEFOOT?

When this barrier is eroded or breached, an inflammatory response is often provoked, and infection can be introduced. But what causes the barrier to be eroded?

Contributing factors to the erosion or breaching of the keratin barrier include:

- Trauma, e.g., stepping on sharp stones or sharp metal pieces, and even overgrown toenails turning back into the sole.
- Low dietary Vitamin A, commonly seed in all-seed diets.
- Obesity has many impacts, ranging from increased weight on the feet to poor blood circulation in the feet.
- Inappropriate perches, e.g., smooth, regular surfaces (i.e. dowel or pipes), sandpaper-covered perches, and perches that are too wide or too small.
- long periods of inactivity leading to excessive weight bearing without relief,
- Excessive weight bearing on one leg due to a problem with the other leg, i.e., lameness in one foot, can lead to *Pododermatitis* in the other leg. In many cases, *Pododermatitis* in one foot will lead to some degree of *Pododermatitis* in the other foot.

Once the barrier is breached, dirt, mud, and faecal material can enter the wound, bringing bacteria with them. A whole host of bacterial species have been found in these lesions, making the point that bacteria did not cause the initial problem, but have taken advantage of it. As the infection and inflammation progresses, small abscesses may form, and the infection may extend into the joints, tendons, and bones of the foot. This can lead to septic joint infections, bone loss, and tendonitis.

The swelling and inflammation continue to progress, causing swelling, ulcerations, and scab formation. This can progress to a level where the pain in the foot is so great that the bird cannot stand or walk. In these cases, euthanasia may be all that can be done to relieve the pain and suffering the bird is enduring.

CAN WE DO ANYTHING ABOUT THIS?

Early recognition of the problem, followed by prompt treatment, can often prevent the problem from progressing and even reverse some of the early changes.

WHAT DOES BUMBLEFOOT LOOK LIKE?

In the early stages of bumblefoot, the problem may not be readily apparent (it doesn't help that it is mainly located under the foot). However, you might notice a limp, and perhaps a reluctance to put weight on one or both feet. If you notice your bird limping or putting its foot down very gingerly, you need to have a good look at the foot, and particularly its sole.

Raptor veterinarians have developed a classification scheme for *Pododermatitis* that provides clinicians with a treatment plan and guide to prognosis. This classification scheme can be extended to other species with satisfactory results.

Class I

The pads on the toes and the foot show signs of wearing thin—the skin looks pink and shiny, or there may be bruising or an early callus. (Figure 2)

Class II

There is localised inflammation/infection of the tissues below and in direct contact with the devitalised area, but with no obvious swelling. There might be a small puncture wound or a scab (Figure 3)

Class III

The surrounding tissues are quite obviously swollen, a scab or wound is often present, and abscesses are often found under the scab.

Class IV

This is getting much more serious—there is a lot of swelling, with an established infection involving the deeper vital structures (bones, joints, and tendons). (Figure 4)

Class V

This is an extension of class IV, the changes now present are causing gross deformities of the foot and toes; it is unlikely the bird can stand.

HOW DOES THE VET EVALUATE THE EXTENT OF THE PROBLEM?

Your vet will need to examine the bird and its feet i.e., it can't be done over the phone or online.

A detailed history is taken to investigate your bird's husbandry, diet, and previous medical problems. This is then followed by a thorough physical examination to classify the *Pododermatitis* and identify any concurrent or predisposing problems (e.g., leg or spinal injuries). In anything greater than a Class II, your vet will normally recommend X-rays to assess the bones and joints, and a swab from the infected area to identify if bacteria are present. If they are, knowing which bacteria and which is the best antibiotic to use can guide the vet's treatment plan.

WHAT DOES TREATMENT LOOK LIKE?

Treatment is usually determined by the classification of the condition, as outlined previously:

- **Class I** carries a favourable prognosis, as there is no evidence of infection. The changes generally respond to conservative husbandry changes including changing perching surfaces and application of topical emollient creams (hand moisturiser).

- **Class II** carries a good prognosis, as infection is localised. Such lesions respond well to surgery, as the total affected area is easily resected, and the skin defects are characteristically small. This class will generally not respond to conservative treatment.

- **Class III** traditionally carries a good to guarded prognosis, as infection is well established, and structural changes have affected the foot. Some can be treated as for class II; however, the majority should be treated by complete surgical removal of all affected tissue, followed by closure of the skin.

- **Class IV** carries a guarded to poor prognosis, as infection is harboured deep in the tissues and affects deeper vital structures, making surgical debridement difficult or impossible. Given the chronicity, pockets of encapsulated infective tissues are often present, which, if not cleared, will result in later recurrence.

- **Class V** carries a poor to hopeless prognosis and may require euthanasia.

As well as medicine and surgery, ongoing treatment regimens include improving the bird's health and nutritional status, usually by conversion to a formulated diet, and improving the bird's husbandry by supplying natural branches for perches. Some cases of *Pododermatitis* may benefit from padded perches until the condition has resolved.

If surgery is contemplated, culture and sensitivity testing should be performed in advance so that the results are available at the time of surgery. This allows an appropriate antibiotic to be used at the time of surgery rather than several days later when postsurgical fibrotic encapsulation of pathogenic bacteria is underway. While waiting for the results, broad-spectrum antibiotic coverage and pain relief can be commenced.

Surgery is aimed at debulking the infection, removing all caseous debris and infected and fibrotic tissue, and closing the site so that primary-intention healing can occur.

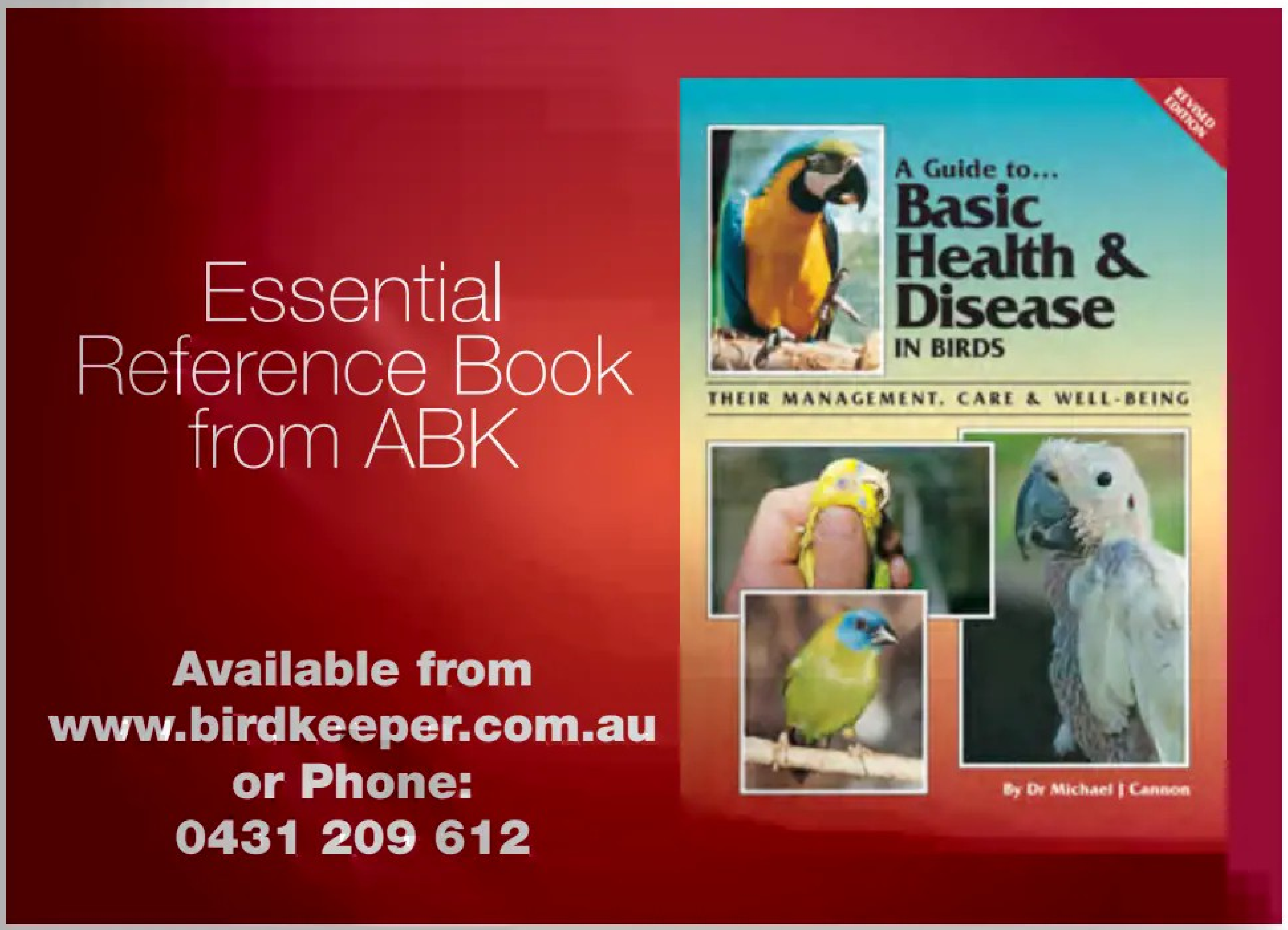
After surgery, pressure must be relieved from the surgical site. This is achieved by padded bandages or gauze/rubber 'doughnuts' to distribute pressure evenly while keeping the surgery site clean and away from potentially contaminated surfaces.

Close attention must be given to the other foot to ensure it does not develop *Pododermatitis* as well.

PREVENTION

Preventing *Pododermatitis* is easier and less costly than treating it. Things for you to think about include:

1. Maintain a clean environment.
2. Allow as much exercise as possible.
3. Provide natural branches for perching.
4. Feed a healthy, well-balanced diet, appropriate for the species you keep.
5. Watch your bird's weight—don't let them get too fat!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World of Birds Foundation

A DUTCH RESCUE AND BREEDING CENTRE FOR RARE PARROTS AND OTHER EXOTIC BIRDS

PART I

Northern Mealy Amazon Amazona farinosa guatemalae, of which a large population is maintained at the WOB

INTRODUCTION

The World of Birds Foundation (WOB) is a Dutch foundation based in Erica, in the province of Drenthe in the northeastern Netherlands. The focus of the WOB Foundation is the reception, rehoming, and breeding of confiscated or surrendered exotic birds (with a focus on parrots) as well as providing advice on birdkeeping.

A key concept of WOB is to offer species-appropriate housing for confiscated or surrendered exotic birds. Additionally, the foundation aims to promote the breeding of particularly rare species, as such species often reach Europe through confiscations. Breeding programs and cooperation with zoos expand WOB's opportunities to contribute to the conservation of endangered species populations. Visitors are welcome at the facility upon request, though an official public section remains part of the foundation's future vision.

The WOB population varies depending on the number and size of confiscations and surrendered birds, ranging between 2,000 and a maximum of 3,000 birds across approximately 300 different species and subspecies. This makes WOB the largest rescue centre for exotic birds in Europe. The focus is on parrots, which make up about half of the population and are represented by approximately 160 different taxa at WOB.

The main people behind the foundation are its founders, Michel van der Plas and his wife, Bonny Talsma. Until his passing at the end of 2024, Michel was responsible as curator for the entire bird population and its development, while Bonny, as director of the facility, managed the staff. In various training events, such as workshops, experienced breeder Michel and equally experienced animal trainer Bonny shared in-depth knowledge about species-appropriate care, breeding, and training of exotic birds, especially parrots.

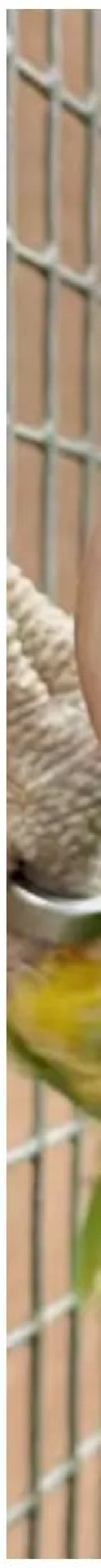
INTERNSHIP

In 2022, I had the unique opportunity to complete a five-month internship at WOB. During this time, I was responsible for the breeding station together with Michel. This opportunity provided me with a wealth of experience, as over 60 breeding pairs were managed in the breeding station during the 2022 season alone, and 35% of the pairs successfully bred, resulting in a total of 193 young birds reared to independence.

Working with Michel and his team was highly educational and impressive. The well-thought-out concept with various management systems and WOB's philosophy make the work enjoyable and lead to significant success in breeding and rehoming rare parrot species. Particularly, I found the history and origins of WOB, as well as Michel and Bonny's background, to be highly admirable and inspiring for my personal journey.

After Michel's passing, it is a special honour for me to present his life's work in this article—a contribution born from my deep appreciation.

WOB founder and director Bonny Talsma, author Pascal Stalder and the late WOB founder and curator Michel van der Plas (from left to right)



Yellow-billed Amazon Amazona collaria

The author, Pascal Stalder, collecting biometric data from a Fischer's Lovebird Agapornis fischeri

Belize Yellow-headed Amazon Amazona oratrix belizensis

BACKGROUND

The origins of the foundation trace back to Michel's fascination with parrots, which existed since his youth. Having grown up in the densely populated western Netherlands, Michel and his wife, Bonny, moved to the eastern part of the country in 1994, where there was more space for a parrot facility. Their private breeding facility became well-known, and more and more birds in need of rehoming (former pets) became part of the collection.

Space soon became scarce again, and in 2002, Michel and Bonny moved to the northern Netherlands, where they settled in a greenhouse of a botanical garden. Due to the continuing lack of space and other complications at the botanical garden, they ultimately decided in 2008 to purchase their own property with two large, already existing greenhouses, in Erica, in the northeastern part of the country. This marked the birth of the current WOB Foundation.

The organisation now employs eleven full-time staff members, as well as numerous volunteers and interns. The facility is mainly funded through donations and the income from rehomed birds and bird boarding services. Additionally, the many volunteers make a significant contribution to the work of the WOB.

Table 1: History of the WOB from 1982 to the present

Period	Location	Project Progress and Size/ Focus of the Collection
1982-1987	Waverveen, Utrecht (Western Netherlands); in their own garden	20 birds; Budgerigars, Cockatiels
1987-1996	Waverveen, Utrecht (Western Netherlands); in own their garden	50 birds; Amazon parrots, Cockatoos, Vasa parrots, African Grey parrots
1996-2002	Nieuw Weerdinge, Drenthe (Northeastern Netherlands)	Foundation of "Stichting Papegaaienhulp" ; 120 birds; Amazon parrots, Cockatoos, Macaws
2002-2012	Haren, Groningen (Northern Netherlands), in a botanical garden	250 birds; Various parrots, including Amazon parrots, Vasa parrots, and African Grey parrots
2012-Present	Erica, Drenthe (Northeastern Netherlands), in two large greenhouses	Name change of the foundation to "World of Birds Foundation" in 2016; 2,000-3,000 birds; Various parrots, including many Amazon parrots and some songbirds, ravens, and trogons

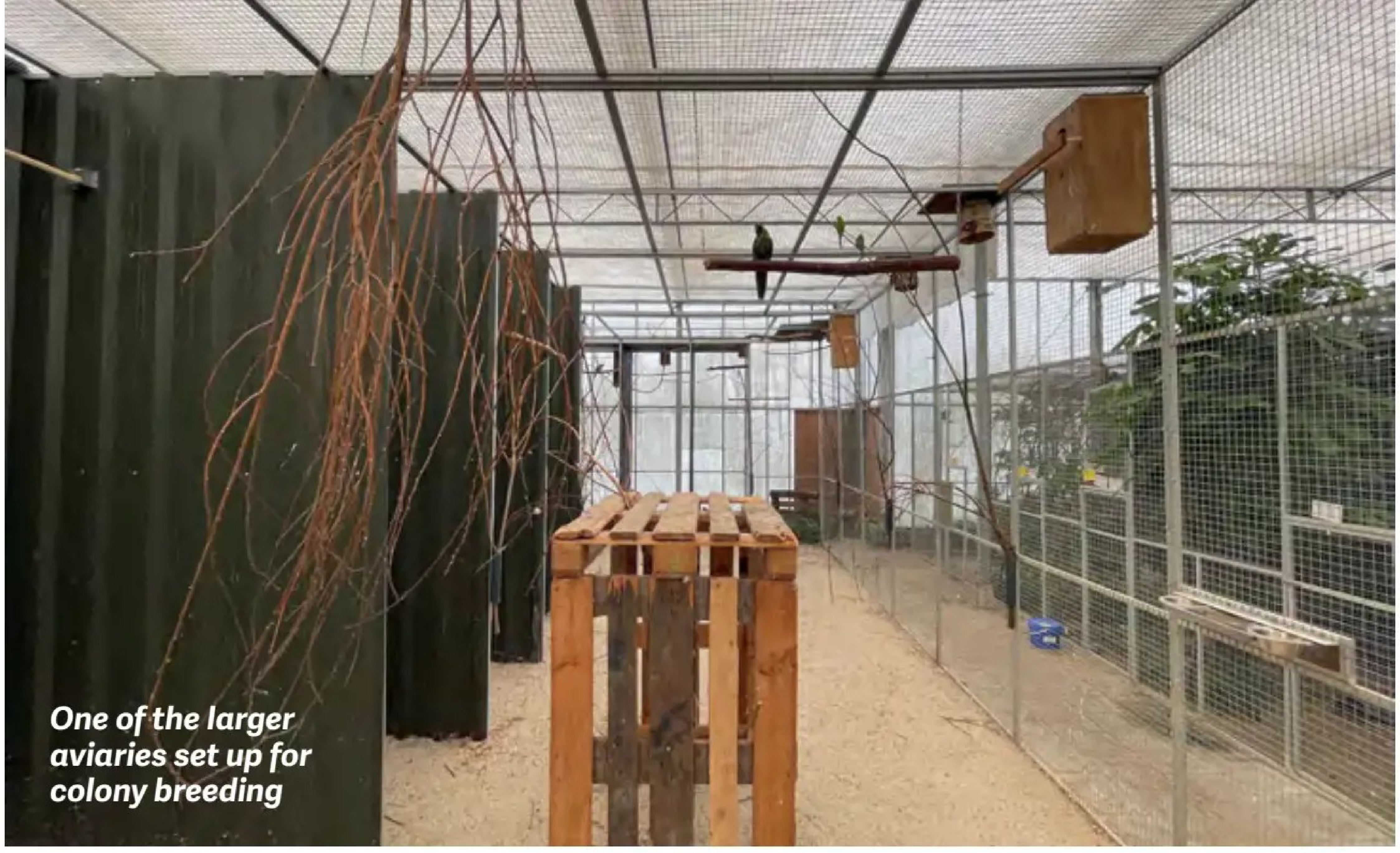
Young Palmarito Green-cheeked Parakeets Pyrrhura molinae restricta at WOB

FACILITY

The WOB facility in Erica is impressive. Right next to the home of Michel and Bonny, two gigantic, interconnected greenhouses, originally used for vegetable cultivation, form the heart of the facility. The greenhouses cover an area of approximately 7,000m², featuring hundreds of aviaries, connected by attractively paved pathways. Inside the greenhouse, there is also a newly built office complex, a food preparation and dishwashing area, a clinic, a spacious workshop, and three heated container-like buildings housing indoor aviaries. In a separate building, the facility has a quarantine station separated from the main collection, as well as separate rooms for artificial incubation and hand-rearing.

The first greenhouse is equipped with many free-standing aviaries in various sizes. Most of these are intended for birds that can be kept in groups and have average dimensions of 6–10m long x 2–4m wide x 2.5m high. This first greenhouse is usually the part of the facility that is accessible to visitors by appointment or during events. A real highlight of the facility is the large walk-through Australian-themed aviary, which offers a unique flying opportunity to a group of Australian parrot species within an area of 200m².

The second greenhouse, located immediately behind the first, serves as the breeding centre. The aviaries vary in size depending on the species housed. For example, there is a row of aviaries measuring 5m x 2m x 3m for large macaws and large cockatoos, two more rows with dimensions of 4m x 1m x 3m for amazons and smaller cockatoos, and several others with dimensions ranging from 2–3m x 1–2m x 2.5m for smaller species. Depending on the species group, visibility between aviaries is either present, limited, or completely blocked. Additionally, the second greenhouse has larger aviaries for various confiscated hornbills and raptors.


One of the larger aviaries set up for colony breeding

MANAGEMENT

Such a large collection requires a lot of work, which must be well coordinated. Each day, six to eight caretakers take care of the confiscated and sick animals, as well as the breeding and juvenile birds, and those birds that are being boarded. To facilitate better coordination, the entire facility is divided into different sectors, each with one main person per shift who is responsible for feeding the respective birds and cleaning the aviaries.

The main feeding event each day occurs in the morning. Only the breeding pairs during the breeding season and some special species are fed more than once per day. For example, the lories are fed three times a day. Later in the day, cleaning and refurbishment work of the aviaries and their furnishings is usually carried out. Furthermore, providing enrichment materials such as fresh branches or offering water showers is an important aspect of the WOB's concept.

THE RESCUE STATION

The origins of the foundation trace back to the intake of surrendered pet birds. Today, the WOB is the most well-known point of contact for confiscated or surrendered exotic birds in the Netherlands. The confiscated birds are preferably brought to the WOB, where they are safely cared for, well looked after, and either kept or rehomed depending on the case.

Although illegal smuggling operations have decreased in recent years, according to Michel, illegally traded birds (mostly from the tropics) still reach the ports and airports of Western Europe from time to time. Often, these are intentionally chosen species that are rarely found in Europe and have high value. Michel, for example, tells me about confiscations of 100 large parrots that were to be exported to Taiwan and occasional confiscations of illegally imported eggs and birds from Latin America and Southeast Asia.

Confiscations from private facilities are also regularly a part of the WOB's daily work. The responsible Dutch authorities inform the WOB in advance if they suspect illegal or improper birdkeeping, or very spontaneously when urgent intervention is necessary. I was involved in several of these confiscations during my internship—an unpleasant experience that opened my eyes to the reality of many parrot-keeping situations.

One case that particularly stands out in my memory involved the confiscation of 120 White-bellied Caiques Pionites leucogaster that were being kept in tiny breeding cages, along with two Military Macaws Ara militaris housed in a small garage, which were transferred to the WOB. The conditions were appalling: several centimetres of dirt and faeces in the cages and covering the entire floor of the room, rotting food, stale drinking water, and rats everywhere. Unfortunately, this is the reality of many situations where the authorities intervene with the help of the WOB. The health condition of the animals is often not very good. Many recover remarkably well, but some birds die, and others suffer lifelong damage.

Breeding aviary set-up for a single pair of parrots. In this instance, it is for Hawk-headed Parrots Deroptyus accipitrinus

Inside view of the greenhouse with feed kitchen, walkways and aviaries

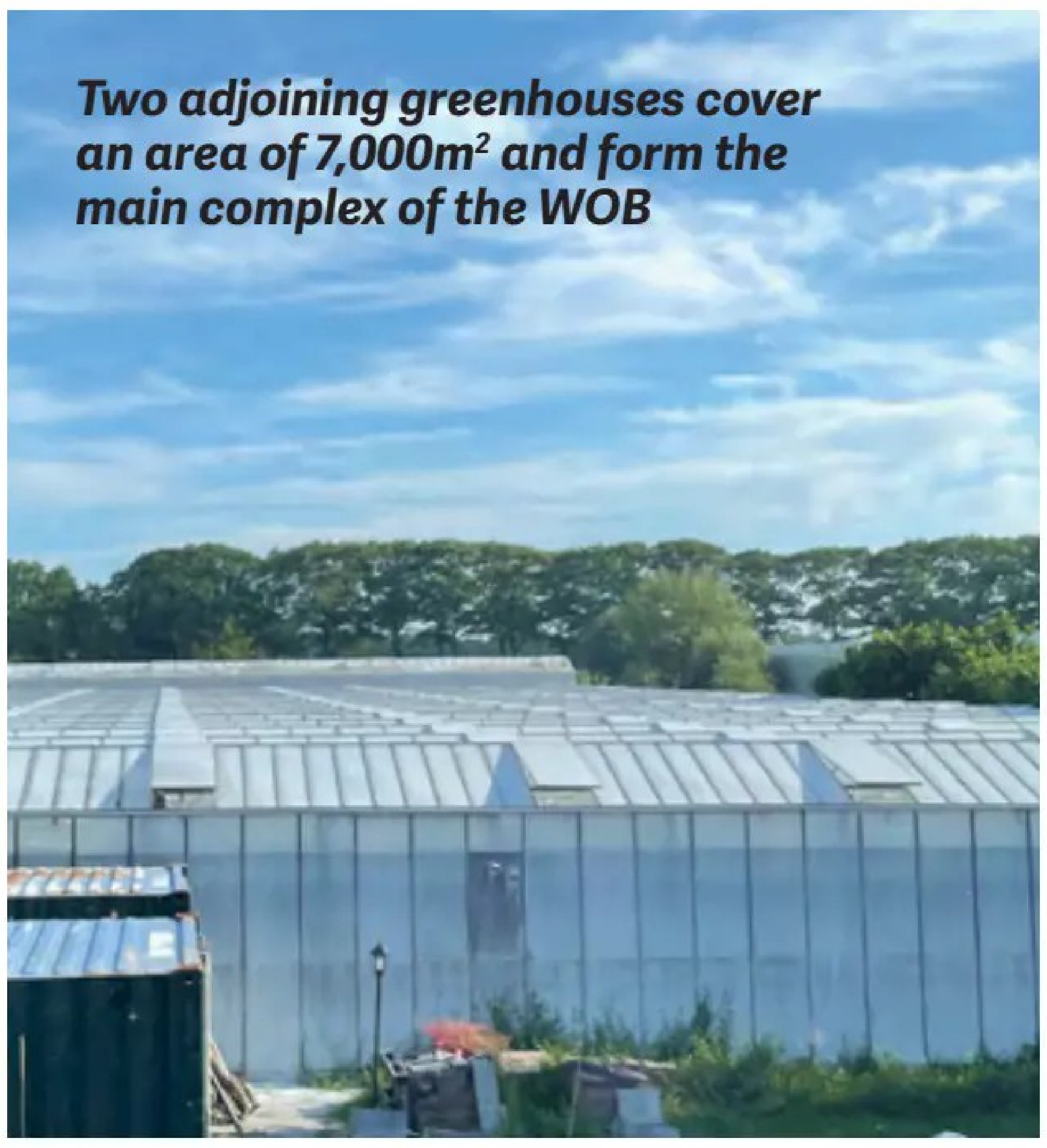

Two adjoining greenhouses cover an area of 7,000m² and form the main complex of the WOB

Table 2: Steps in the Management of the Intake of Confiscated or Surrendered Exotic Birds at WOB

Work steps	
1.	Contact between authorities or private individuals and WOB: Exchange of information regarding the situation and the number and species of birds to be confiscated or handed over.
2.	Coordination of the WOB Team: Responsible for aviary allocation and transfer of the birds.
3.	Preparation of quarantine aviaries.
4.	Transfer of the birds: Often, picking up from airports, breeding stations, or private homes is necessary.
5.	Inspection and documentation of the birds.
6.	Quarantine measures for the birds: Testing for health, disease, condition, and interaction with conspecifics and caretakers over several weeks and months.
7.	Organisation and planning of future housing systems for the birds: Retention of birds for an existing group of the same species, their own breeding station, or transfer to zoos, animal parks, or private individuals.
8.	Transfer of the birds to the new housing that has been decided upon.

EDUCATION AND CONTACT PERSON

The dissemination of knowledge to encourage and facilitate the keeping of birds in as natural a manner as possible is also part of the WOB's philosophy. Accordingly, they conduct regular lectures and workshops for birdkeepers and interested individuals on a wide range of topics related to bird care.

In the Netherlands, it is also mandatory for all bird breeders to be able to provide proof of expertise. This certification can also be obtained at the WOB.

Furthermore, the WOB is considered a point of contact for the authorities. Specialist knowledge about individual species (e.g., regarding their conservation status, etc.) is essential for the control of the import and export of exotic birds.

Michel himself, alongside his work as curator of the WOB, was often travelling throughout the Netherlands, giving expert lectures on various topics related to the management and breeding of parrots, as well as their conservation.

THE BREEDING STATION

Michel's passion was always parrot breeding. His vast knowledge and experience were amassed during a span of over 40 years, and along with access to many rescued or confiscated animals, provided an excellent foundation for successful breeding.

Thanks to a self-developed prioritisation system, each species or subspecies is annually evaluated based on its importance or urgency for breeding efforts, using a point system. The system was originally developed to ascertain the species that have the highest priority for breeding (not all species can be bred due to time and spatial limitations), due to the wide variety of species kept at the WOB.

Table 3: Factors in the Priority System Developed by Michel van der Plas to ascertain the Importance or Urgency of Breeding Efforts for Individual Taxa

Factor	
1.	Status in the wild
2.	Status in captivity
3.	Trend of the status in captivity
4.	Breeding complexity
5.	Demand among birdkeepers

In total, the WOB has around 70 aviaries available for breeding purposes, which are stocked with different taxa and breeding pairs each year according to the prioritisation system.

Commercial breeding, including the breeding of mutations, is not part of the WOB's philosophy. Rather, the focus is on the conservation of pure subspecies. For example, due to hybridisation, there are almost no pure subspecies of the Yellow-headed Amazon *Amazona oratrix*, Eclectus Parrot *Eclectus sp.*, or Galah *Eolophus roseicapilla* left in Europe. The preservation of natural forms of certain species, which were once bred frequently in the past, is also a central focus. An example of this is the Peach-faced Lovebird *Agapornis roseicollis*, of which pure natural forms are now very rarely encountered.

Hand-rearing is also only used in specific cases for highly prioritised species. An important factor for successful breeding, according to Michel, is the selection of a suitable breeding pair. The focus during pairing is on genetic diversity and allowing birds to pair naturally within groups.

When feeding the breeding birds, a distinction is made between the breeding season and the non-breeding season. The birds are stimulated to start breeding. Michel placed great importance on the right quality and quantity of food. A combination of a specially formulated seed mix, Psittacus brand pellets, fresh vegetables and fruits, and sprouted or cooked food in species-specific amounts forms the foundation of a balanced diet for the breeding birds.

Additionally, different types of nest boxes are used for the various species groups to meet the individual needs of each taxon.

EDITOR'S NOTE:

The second half of this fascinating article will appear in ***Australian BirdKeeper*** vol 38, issue 10, so stay tuned! abk

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Vale Bruce Kubbere

A LIFE WELL LIVED

AUTHOR
JENNY HEFFERNAN

To begin, I want to share a quote from Bruce, something he said to me eight years ago that perfectly reflects the kind of person he was:

'I've always been interested in wildlife, even from a young age. My experiences as a child helped to shape the person I have become. Back then, I never dreamed I would achieve so much. I just collected eggs and read books about birds as a hobby. I continued to learn about the amazing wildlife in Australia. I'd always enjoyed building things, so I became a bricklayer. Building and birds, they don't seem like much on their own. Who would have thought I could create something so successful by putting them together?'

Leonard Bruce Kubbere was born on February 13th, 1940, in Blacktown. Shortly after, his family moved to Westmead, and his sister Pat was born. Bruce had a joyful childhood, and from a young age, his passion for animals and the Australian bush was clear. He was lucky to have relatives in Bylong, where he spent his free time exploring.

His interest in birds was clear as he spent countless hours bird watching and collecting bird eggs at Doonside. His uncle showed him how to climb trees to gather eggs, and he quickly learned that the safest way to descend from a tall tree while holding a delicate egg was to place it in his mouth. By the time he turned 12, he had built a lovely collection of bird eggs.

He had many bird books and spent hours reading about different species. His father then constructed a large bird aviary in their backyard and gifted him a pair of King Parrots. At that time, he also had a pet Budgie that he trained to talk, along with a pet Magpie.

Bruce then went to Westmead Technical College, where he became an apprentice bricklayer. In 1959, he received the award for NSW Leading Apprentice. After that, he worked alongside his father, building shops, factories, and homes.

When Bruce was 17, his life changed dramatically when he met Margaret, the love of his life. Margaret lived at Featherdale, which was then a poultry farm, but their relationship had to be put on hold because Bruce was drafted into the national service. During that time, Bruce and Margaret wrote love letters to each other every day.

After completing his national service, Bruce continued his avian adventures and began showing birds. He went to many shows, closely examined the champion birds, found trustworthy bird dealers, and collected those that had the potential to be great. His time spent showing birds turned out to be very successful, and he was thrilled when his Cordon Bleu won the Grand National Show at the Sydney Town Hall.

Fortunately, Margaret shared Bruce's love for birds, the bush, and wildlife, and they were married in 1961. Bruce and his father built their family home in Blacktown, and shortly after, their children Geoffrey, David, and I were born. Bruce continued to show his birds, winning the National Show for three consecutive years. At this point, he was earning more from bird showing than from bricklaying. We still have all the ribbons he won from those bird shows.

Bruce then began a new project by opening a retail plant nursery at Featherdale. Local people enjoyed shopping there because they could find various items for their gardens, as well as fresh eggs and poultry products.

He then obtained his bird dealer's license, allowing him to buy birds from breeders. Bruce built a small facility to sell birds and bird supplies. While pursuing his love for birds, he still worked full-time as a bricklayer, unaware of the wildlife park he would eventually create. Amazingly, the bird dealership thrived, drawing in bird lovers who had seen his birds at different shows and were now visiting Featherdale to buy their birds and supplies. As the business grew, Bruce was able to leave bricklaying behind and dedicate himself fully to the dealership. During this time, he also judged bird shows across New South Wales.

Bruce was a very determined man, and when he had an idea to do something, nothing stopped him. He decided to dig, by hand, a dam for Wood, Black and Mallard Ducks. It was hard work, but he did it. He then thought that a pair of Black Swans would look nice on the water. That one thought, fleeting and seemingly insignificant, would shape the direction of his life. Bruce bought two swans for $10 and struck up a conversation with the seller, who asked if he'd like to travel to

Adelaide to pick up a camel. Bruce had never been to Adelaide, but he decided to go. After visiting the Gorge Wildlife Park, he was inspired and realised he wanted to create his very own wildlife park. At the time, he had two swans, some ducks, birds, and $1,000 in savings.

Bruce continued to build his collection, obtaining animals from various wildlife parks and on the 22nd of July 1972, Featherdale Wildlife Park officially opened. He charged a 30-cent entry fee for adults and 10 cents for children. The retail plant business closed, but Dad kept breeding and selling birds.

Dad's dream nearly came to an end when the state government resumed the land for housing, and Featherdale was to be abolished. Featherdale had become a very popular destination for school excursions, driven by Dad's passion for education. After four years of dedicated campaigning by schools and the community, Featherdale was saved.

Bruce was convinced that collaboration among parks and zoos was essential, he wanted to pair animal species from across the country to enhance captive breeding. Recognising the importance of building relationships, he became eager to learn about the initiatives of other parks. As he began visiting various facilities, his friendly and generous nature helped him expand his network of contacts, leading to successful exchanges of animals.

I remember climbing into the back of Dad's white panel van with my brothers, Mum was in the front seat with bags of snakes under her feet, the van was loaded with a menagerie of animals, the trailer was attached and off we went. Dad would drive nonstop across the Hay Plains to Adelaide to drop off and collect stock. He had a rule that we only stopped for the 2 Ps, petrol and a piddle.

We didn't spend much time with Dad in the evenings because he was usually occupied with Lions or Rotary meetings, judging bird shows, going to the airport to pick up or send animals, checking on everything at Featherdale, or out collecting.

As Featherdale grew, Bruce travelled north, south, east and west, to the mountains, the deserts and the rainforests to collect animals for Featherdale and other zoos. He would be issued with his permits, and then he would leave home in his panel van wearing his denim shorts, white singlet, white socks and work boots. He took a flagon of water, a hessian bag, a mattock and shovel, his pen knife, a saw, a snare pole, onion bags, a bucket, and he would grab one of mum's tablecloths to use as a blanket. When he got cold, he would just pull up his socks.

He has seen things we will never see and been to places we will probably never go. He knew the bush well and usually found what he was looking for quickly; if he didn't, he would come home and return later. He was a master with a mist net, learnt to manoeuvre his tinnie in thick lignum and knew how to wade through snake-infested marshes. He was in his element; he was in the bush. He used white mice to catch kookaburras, he made tunnel-shaped traps to catch wombats, he used a yellow Canary in a cage as a caller to trap birds, and he could catch a goanna with a noose and a pair of pincers. There was nothing he couldn't trap. David and Geoffrey have many memories of joining Dad on these adventures.

We were also tasked with hand-rearing animals for Dad at home, which meant our house often resembled a zoo on a very tight budget. Mum was the official baby bird expert, David and Geoffrey's bedroom looked like a wildlife rescue centre—filled with joeys, wombats, and reptiles—and I took on the job of rearing baby monkeys and koalas.

Dad shared his bush knowledge with David, taking him trapping, while he shared his avian skills with Geoffrey, and he just loved talking to me. He used to joke that we'd probably end up chatting with a lamp post if no one else was around.

Bruce was disappointed when Holden stopped producing panel vans, forcing him to buy a Ford instead. He missed the bench seat, which he used as his bed, and the tailgate, where he used to make his sandwiches.

Bruce was determined to share his knowledge and often took other zookeepers collecting with him. He enjoyed sharing many of his stories, like the pelican that swallowed the glasses, the dead camel on the railway tracks, his spotted kangaroo, the flying fox debacle on Susan Island, his trip to hell in the Macquarie Marshes, and the milkman and the monkey, to name a few.

Bruce and Margaret with Chad Staples at Featherdale
PHOTO JOCELYN HOCKLEY

From L-R Joshua Allen, Kylie Radnidge, Bruce and Margaret Kubbere, and Matt Radnidge
PHOTO SYMBIO WILDLIFE PARK

Bruce laying bricks for the new front entrance at Symbio Wildlife Park
PHOTO MATT RADNIDGE

Bruce at Featherdale alongside a memorial plaque honouring him and Margaret
PHOTO JENNY HEFFERNAN

Over the years, Featherdale has had its fair share of celebrity visitors from Tom Cruise to Ron Howard to Billy Crystal—you name it. One day, a man came to Featherdale looking to buy an eclectus parrot. Someone handed him Bruce's number and said, 'Give this bloke a call—he'll sort you out.'

Now, here's the thing about Bruce: his hearing wasn't exactly great. So, when this man called that evening and introduced himself, Bruce confidently replied, 'Mate, there's no "Kostya Zoo". You've got Melbourne Zoo, Adelaide Zoo, Perth Zoo—take your pick', and hung up.

For four consecutive nights, this poor bloke kept calling, trying to explain his situation. And on each of those nights, Bruce patiently redirected him to Australia's finest zoos before hanging up, all the while getting more and more fed up. Eventually, Bruce told David, 'There's this bloody bloke who won't stop ringing about some 'Kostya Zoo.' I don't know why he's so desperate to find it—it doesn't even exist!' Between fits of laughter, David explained that it wasn't a zoo enthusiast on the line—it was Kostya Tszyu, the champion boxer, just trying to buy a bird. Classic Bruce. The man who unknowingly went 12 rounds on the phone with a world champion.

As Featherdale developed into a popular tourist attraction, Bruce had to use his trowel again to build a bigger kiosk and souvenir shop. Over 40 coaches visited each day, and 84 staff members were employed. Featherdale had become an internationally famous tourist destination, but Bruce could still be seen working alongside his staff in his trademark outfit: denim shorts and a white singlet.

He was a modest man who believed in hard work, using any profits to improve Featherdale or donate to charity. He also created many employment opportunities for young, enthusiastic zookeepers. Dad was honoured with the Lions Club Melvin Jones Award and the Rotary Paul Harris Fellow Award for his community service in Blacktown. He was especially proud when Featherdale won the Australian Tourism Award.

Bruce's innovative enclosure designs recreated natural habitats, and he spent many hours collecting logs, branches, tea tree and white ants. He successfully bred all nine species of Australian owls, Wedge-tailed Eagles, Black-breasted Buzzards and the Hairy-nosed Wombat, to name a few. He was the first person in the world to breed the White-breasted Sea Eagle and had the most successful Tiger Quoll breeding colony in any zoo. He also contributed to university research projects and sent Koalas to overseas zoos.

He represented other wildlife parks and zoos through leadership roles in the Fauna and Marine Parks Association, the Non-Indigenous Animals Advisory Committee and the ASZK. I enjoyed attending ASZK and other conferences with Dad, especially the world conference in Germany, where he loved sharing stories and knowledge with other keepers. He was thrilled to perform a feather transplant on a falcon at the Abu Dhabi bird hospital. Bruce was also proud to be the patron of Aussie Ark, as he was passionate about conserving threatened species.

After Featherdale was sold, Mum and Dad moved to Kenthurst, and the first thing Dad did was build bird aviaries to maintain his lifelong love of studying, breeding, and enjoying native birds. Dad was also able to spend quality time with Mum, his grandchildren, great-grandchildren and his many wonderful friends.

He still visited Featherdale regularly as he thoroughly enjoyed talking to all the keepers. Dad was tickled pink when the walkway opposite Featherdale was renamed the Kubbere Walkway by Blacktown Council.

Bruce received the Order of Australia for his significant breeding successes and contributions to education, research and tourism
PHOTO JENNY HEFFERNAN

PHOTO FEATHERDALE WILDLIFE PARK

Bruce with Jocelyn Hockley at an ASZK conference

Bruce with a baby Koala
PHOTO FEATHERDALE WILDLIFE PARK

Bruce had a natural affinity with animals
PHOTO JENNY HEFFERNAN

Dad was totally surprised and honoured when he received the Order of Australia for his significant breeding successes and contributions to education, research and tourism. His commitment to Australian wildlife has contributed to many thousands of adults and school children gaining a better understanding and appreciation of our wildlife and the need to conserve it for future generations.

It was then time to downsize, and Mum and Dad moved to Glenhaven. Dad enjoyed gardening and watching the native birds. Sadly, the love of his life, Margaret, passed away in 2023.

Dad then moved to the Gracewood Aged Care facility, and I knew I had picked the perfect place for him when I walked in and saw paintings of magpies and wrens hanging on the walls and a Gouldian Finch in a birdcage in the loungeroom.

Dad made many new friends and enjoyed the gardens and the weekly bus trips. David and Geoffrey took Dad back to Bylong, and he had a great time with them in the bush; he even got to shoot a rabbit!

Bruce was a leader, a mentor, a friend and an inspiration to everyone. He was also my dad.

AVICULTURAL DISPLAY SHINES AT 2025 SYDNEY ROYAL EASTER SHOW

AUTHOR
SAM DAVIS

ONCE again, the Finch Society of Australia (FSA), with assistance from the Avicultural Society of NSW (ASNSW), set up the FSA's aviary for the duration of the 2025 Sydney Royal Easter Show. Andrews Bird Palace & Garden Centre (ABPGC), a major bird shop in Sydney, filled the aviaries with birds. One aviary was filled with a kaleidoscope of lovebirds, and the other with a broad collection of finches. A heated tank with day-old King Quail chicks was also on display, which proved to be a huge hit with the crowd.

Andrew and Deb Brincat, along with their family from ABPGC, also displayed a range of hand-raised parrots from Budgerigars to cockatoos and macaws and manned the stand with club volunteers for the duration of the show. Just under one million people attended the 2025 show, with hundreds of thousands entertained as they interacted with or passed by the display.

Deb Brincat, ably assisted by family, showed off hand-raised parrots, and advised of their care, nutrition and husbandry each day in the nearby Pet Pavilion arena, alongside local celebrity Farmer Dave. The value of the display and the presentations in the arena in terms of promoting aviculture to the masses cannot be overstated. On behalf of the avicultural community, we applaud and thank the Brincat family, the FSA and the ASNSW for their efforts.

One of the main organisers of the event for over a decade, Ivan Cindric from the FSA, was named a 'Champion of the RAS', a prestigious award nominated by the Domestic Animals Committee.

Committee Chair John Bryson described Ivan as follows during the major presentation ceremony in the main arena:

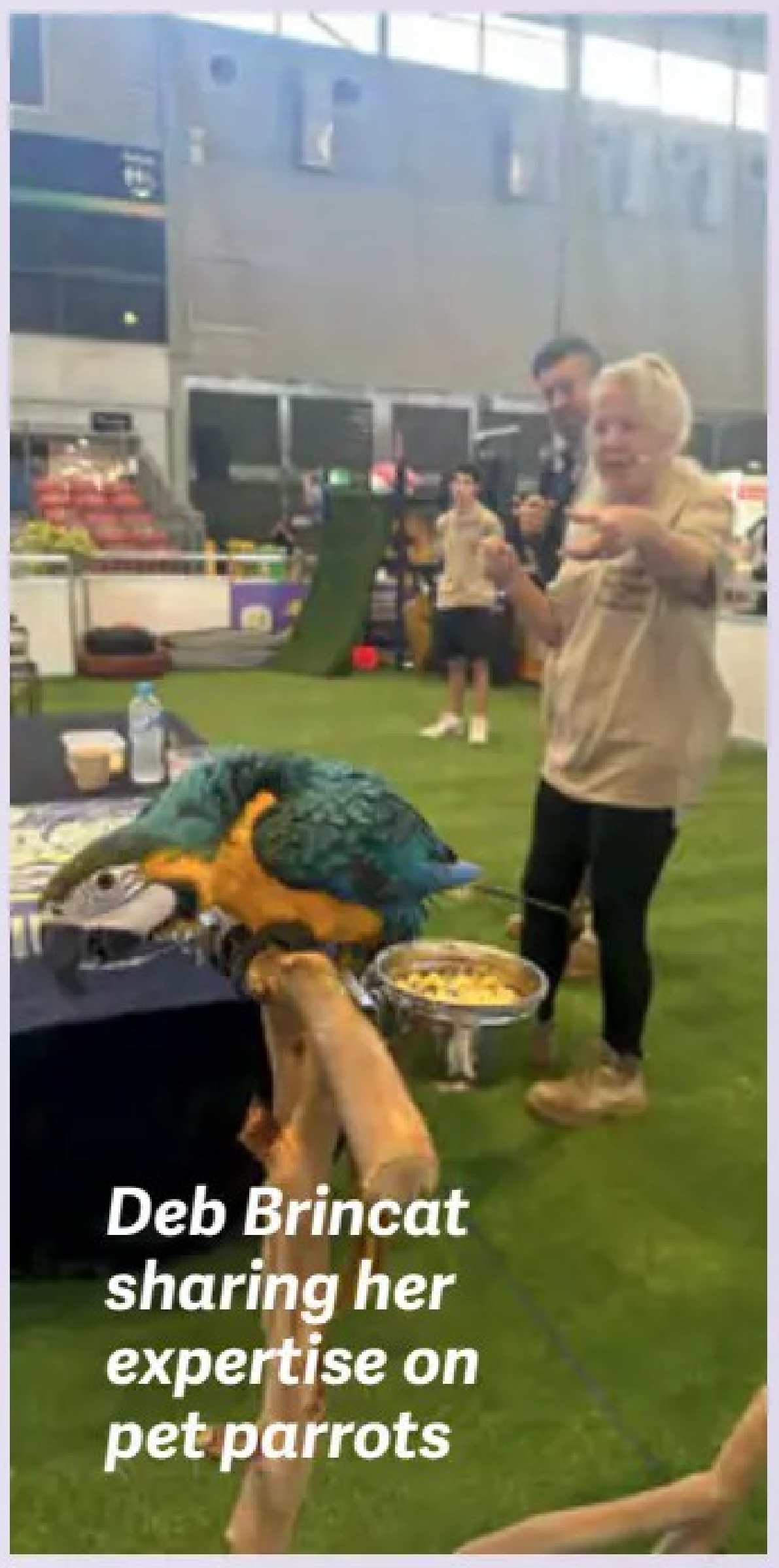
'Ivan has been a passionate Exhibitor for more than two decades, a dedicated and much-relied-upon Official since 2015 and has been at the forefront of the evolution of the Aviary Bird Show into what it is today. Ivan identified an opportunity and was instrumental in expanding the two-day competition into a 12-day showcase, wowing the public with an explosion of colour, variety and birdsong while providing information, education and giveaways on Aviculture.

His dedication, organisation and unflappable, friendly nature are invaluable to the Domestic Animals Committee.'

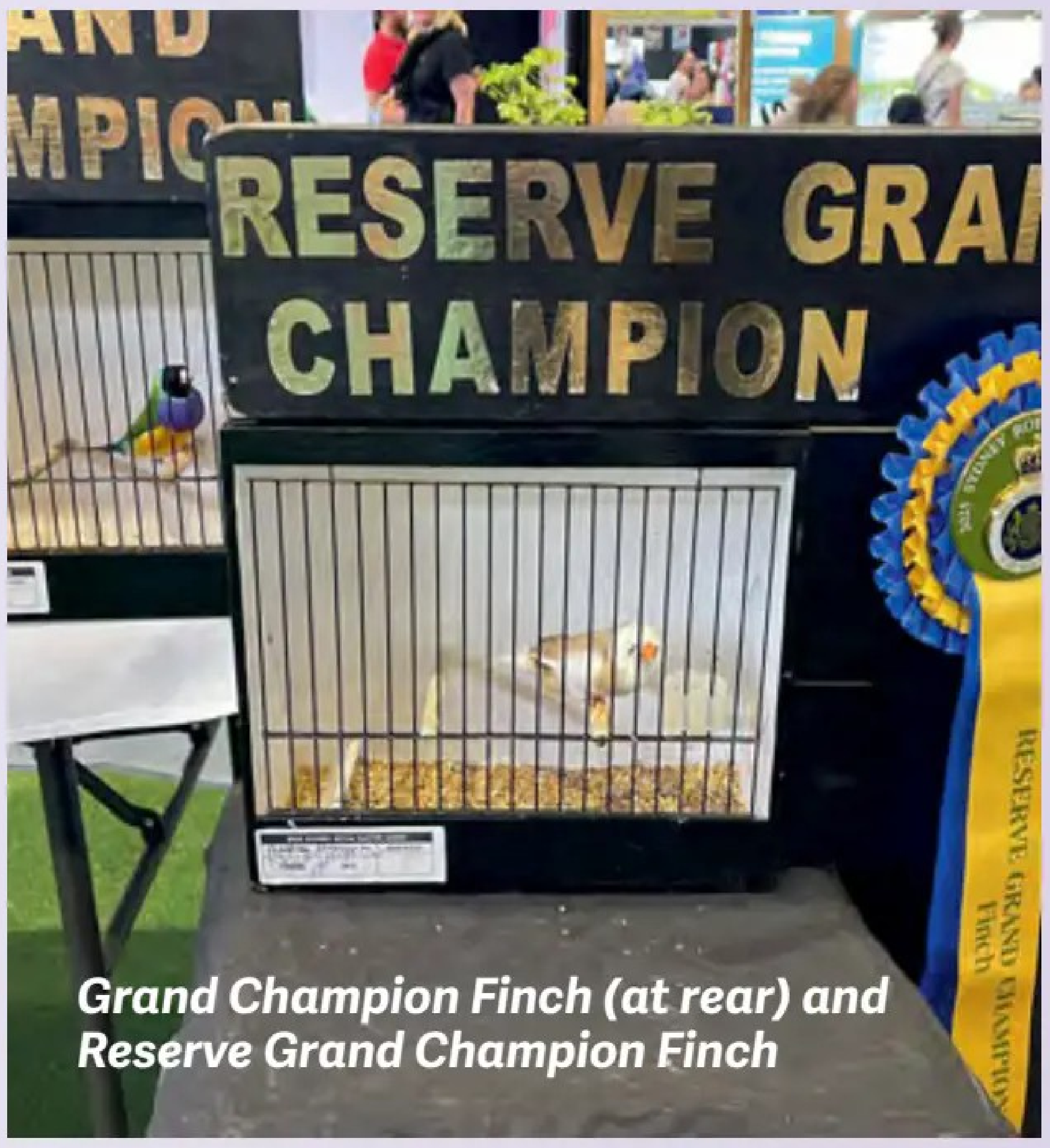
The display outlined above is in place for the full 12 days of the show. The aviary bird competition is held over 2 days. The competition adds further to the display, as such a broad selection of parrots, Budgerigars, Canaries, and finch species are on display. It was fantastic to see some young competitors entering birds this year, including Zoe Christodoulou, who won Champion Junior with her Canary. Congratulations to all winners, officials and to all who entered. The event is such a positive showcase of aviculture! abk

2025 Champions of the RAS
PHOTO RAS

FSA member, Ivan Cindric was awarded as a 2025 Champion of the RAS
PHOTO RAS



Deb Brincat sharing her expertise on pet parrots



Grand Champion Finch (at rear) and Reserve Grand Champion Finch

Zoe Christodoulos with her champion junior Canary

HOOKBILL HOBBYIST

THE IMPORTANCE OF

Bird Drinking Water

AUTHOR & PHOTOS
EB CRAVENS

THE STUFF OF LIFE

Water is the stuff of life. It moves and flows within us, keeps us hydrated, aids digestion and excretion, helps cool our bodies, and is used to keep us clean. For avian species, it is quite the same.

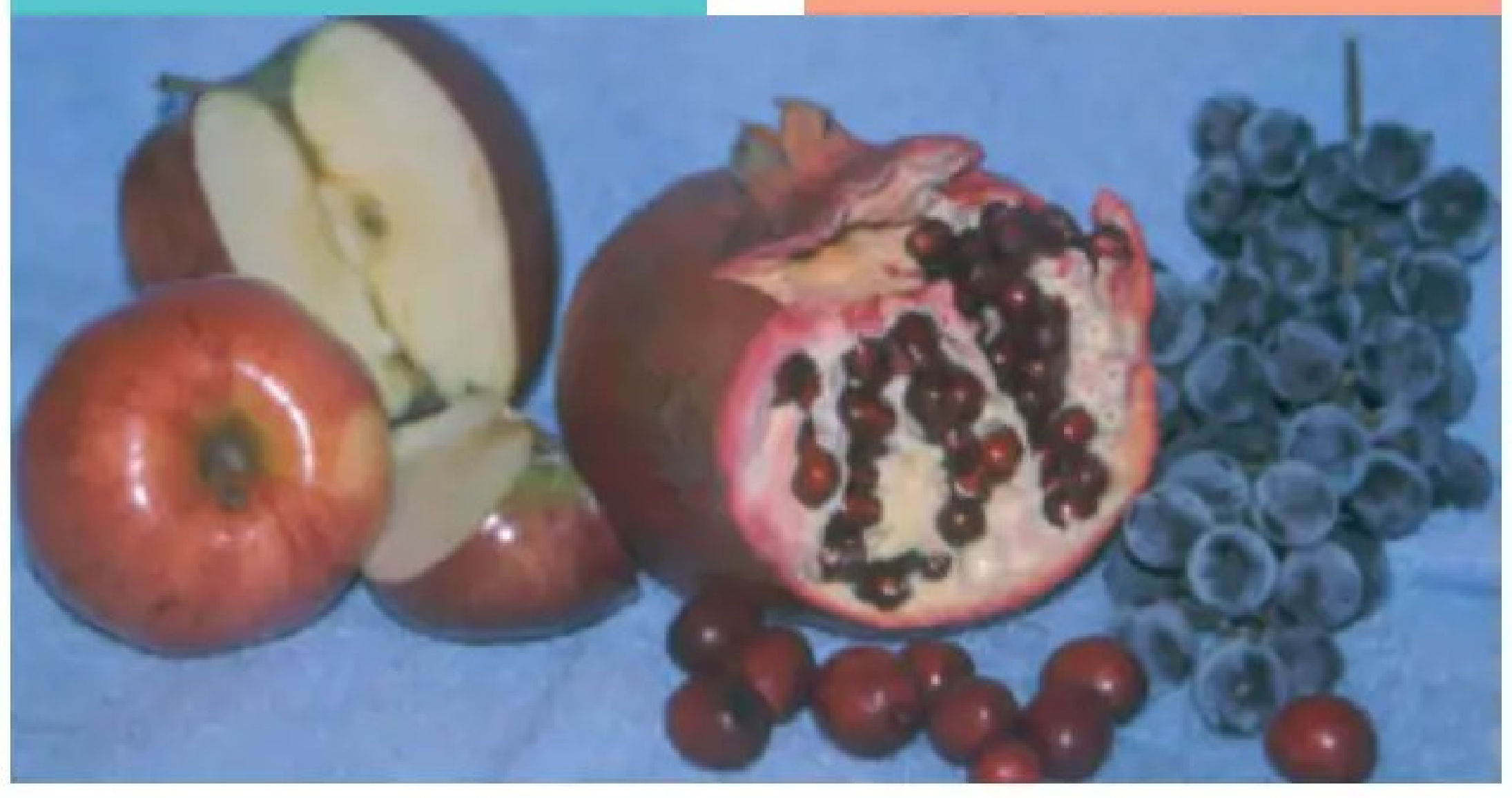
Yet, for a lot of parrot keepers, water is just something *there* by habitual necessity, rating a distant second to the all-important food bowl. Owners provide it, but they do not refine it to its best possible prominence.

Princess Anne with one of our large stainless steel water bowls

I have seen this countless times when visiting, photographing, or taking care of other people's aviaries or flocks of pets. I've seen tiny plastic water cups being used for macaws, barely big enough for a Green-winged's beak. I've seen outdoor breeding cages with water bowls green with algae growth or floating discarded seed hulls from days before. I've helped fill up other keepers' water dishes from the only source available—an old, weathered vinyl garden hose, which makes the liquid spurting out the end taste like heated plastic.

I've watched those 'otters' of the parrot world—psittacines that love to bathe once or twice every day, such as lories and lorikeets—have to deal with fresh water from an automatic drinking tube apparatus with no chance to splash themselves wet!

All this makes little sense to me. I guess I am just born under a dedicated 'water sign'. I consider fresh, clean, pure water for drinking indispensable in my abode. And from my earliest days of birdkeeping in the 1970s, I followed one rule: my parrots get the best possible drinking water I can provide from a container or dish I would drink out of.



When given fresh fruit, some parrots will ignore their water

BUY A FILTER

That means for the past thirty-five years or more, I have always had a high-quality water filter attached to my kitchen faucet. It's not that the water out here in Waiohinu, Hawaii, or even previously in Santa Fe, New Mexico, was unsafe to drink; it's just that tea or coffee or lemonade or whatever tastes so much better when made with chlorine-free, pure water. The added benefits are to me and my birds' health, since treatment plants and aging water pipe systems can have some decidedly unhealthy potential.

STAINLESS STEEL BOWLS

I like to serve all my animals' water in stainless steel bowls… a large bowl to be sure. Those years I spent changing plastic water dishes in the parrot store taught me that plastic and slimy bacteria/algae growth go together. Stainless steel also has a chilly-ness to its touch, which adds to its appeal, as some psittacines really like cooled water during the long days of summer. It is fascinating to see how many of my flock come down immediately for a drink after I put the freshwater bowls in their cages.

WHEN TO PUT FRESH WATER OUT

Unless I am in a hurry and will be gone for the entire day, I do not put fresh water out at the same time I am doing the morning soft and cooked wet food feeding. Parrots, especially the tree-dwelling species, often obtain much of their needed liquids from the wet and green foods they ingest. I want my flock to eat this morning fare as it contains sprouts and pulses and fresh corn and green stems, etc., and is the most nourishing part of the daily diet. Holding water back an hour or two will prompt them to pulverise tangerine, apple, bok choy stalks, and the like.

Besides, many hookbills—Eclectus, cockatoos, Pionus, for example—are known for thoroughly trashing their water dishes with pieces of food, seed hulls, extruded pellets and more. Giving my birds time to eat and settle down before bringing out the cleaned and refilled stainless water bowls will ensure that those containers stay fresh for a much longer period during the day. For the extra messy Eclectus, I would always make sure the water bowls were placed higher up, in a far corner of their cage where they could not just run from food bowl to water bowl, back and forth on a dowel perch, making a messy soup. They had to at least climb over and up a fair way, making it less likely that food items were habitually carried over to the water dish and dunked! (Please note that Eclectus Parrots require soft, moist foods; a diet that is too dry may lead to poor health and even feather picking.)

FRESH WATER EVERY DAY

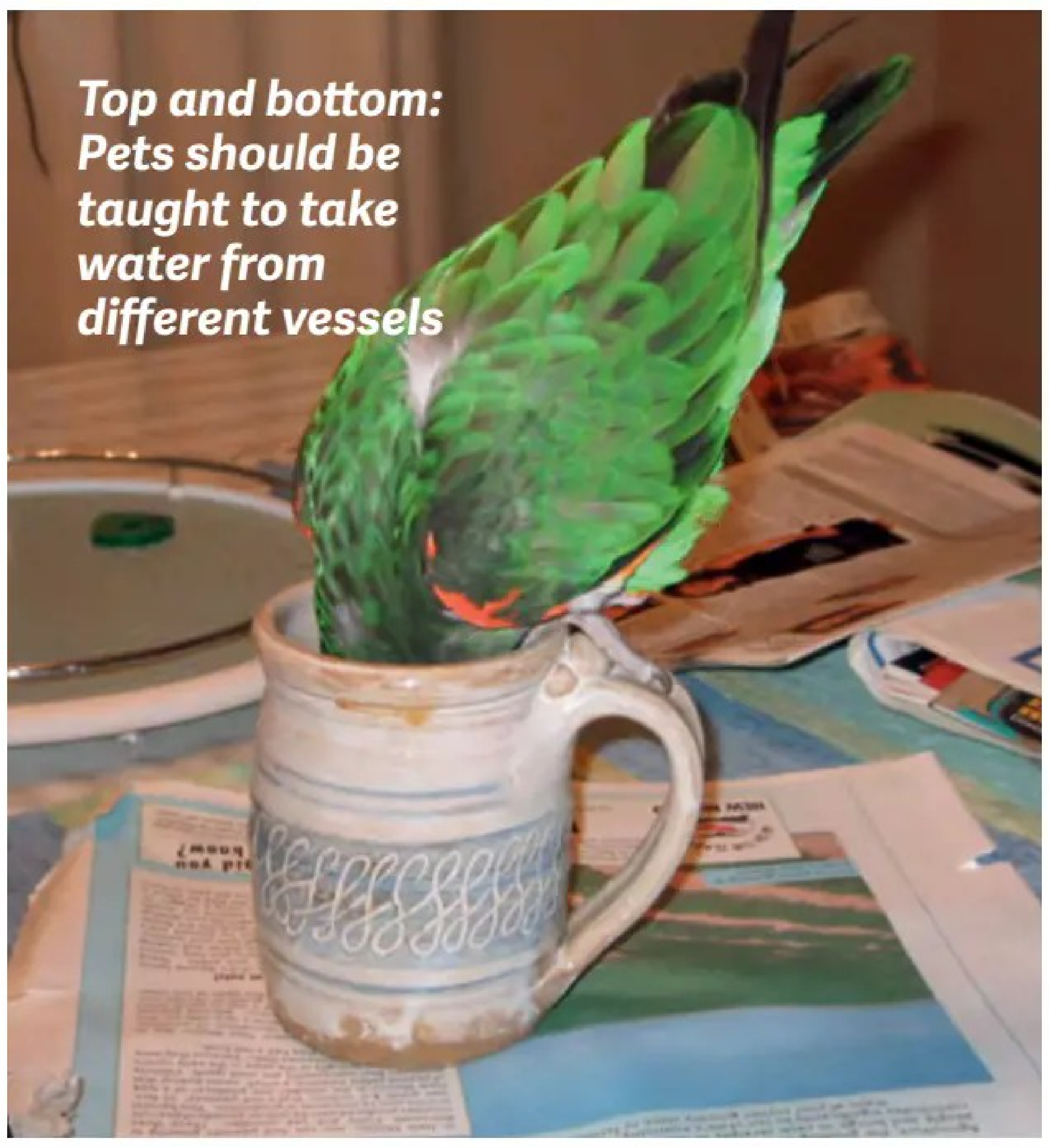
Of course, most of us know it is important to give our birds fresh water every day. Clean water in a large enough bowl is not by itself a risk. Therefore, we do not put additives in our parrots' water. Things like bleach, grapefruit seed extract, or antifungal medicines are not necessary in a clean environment and can do more harm than good.

Liquid water-soluble vitamins that were once very popular in pet stores usually oxidise and weaken quickly and can promote detrimental bacterial growth. Some parakeets I have seen will shy away from such additives and refuse to drink from a water bowl, especially when the B vitamins have turned it pale yellow. The only time we add grapefruit seed extract to water bowls (9ml per litre) is during our biannual three-week worming regimen for the breeding parrots.

POSITIONING OF WATER BOWLS

As we have outdoor aviaries with open water bowls, it is important to place them in such a position that wild birds cannot land on top of a cage and defecate into the water. With our outdoor waters, we do make an exception by not changing the water on days when we have heavy rainstorms. I like the fact that our parrots can have access to an overflowing bowl full of natural rainwater, occasionally.

Usually, the purest source of natural water is rainwater. Rainwater comes from the condensation of water in the presence of the sun after the water has evaporated from the lakes, rivers and seas. Impurities are removed during the vaporisation process, and then water falls directly onto the earth in the form of rain.



Top and bottom: Pets should be taught to take water from different vessels

Drinking rainwater can improve human digestion because of its alkaline pH content, the same as distilled water, so it helps to neutralise blood pH levels and promote stomach functions. Rainwater is known to be very beneficial for healthy skin and hair. It makes sense that it is also good for the birds.

TEACHING BABY PARROTS

One of my favourite activities with baby and fledgling parrots is teaching them to take their first drink. Water, being clear and reflective, is not easy for a still-developing youngster to see and comprehend. Also, since it is so important, 'wa-ter' spoken in a slow, distinct voice is one of the first two or three words we teach hand-fed pets. With a small ceramic or stainless dish filled to the brim, I raise it to the baby's chin and gently press a feathered head down until the beak dips in the cool liquid... repeating 'wa-ter'.

Reactions are immediate and sometimes humorous. Some fledglings will dunk their face in the dish and start gulping (Ooh... I needed that!). Others will shake the water from their beaks and stare at the clear surface. And some chicks will try to jump into the little dish for their first bath. The point is, they all needed an early lesson to learn how to drink, how to recognise what was soon going to be their water dish, and to associate the spoken word with the water so that as they mature they could be given a drink of 'wa-ter' in any situation, be it from a travel mug, or even from a cupped hand.

Many raw foods can provide extra moisture for our parrots

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San Antonio Zoo

TEXAN SUCCESS STORY FOR BREEDING ENDANGERED BIRDS

Aviaries at San Antonio Zoo

WHOOPING CRANES

Draped in a billowy white sheet, the San Antonio Zoo staff member sports a pillowcase for a hood, and black screening disguises her face and eyes. All to hide her humanness. She leads the downy fledgling around the facility, clutching a homemade 'mumma' puppet in her hand. 'Whooping Cranes *Grus Americana*, must be walked extensively', notes Josef San Miguel, Director of Aviculture.

'Forty-one years ago, when I started, there were only 14 Whooping Cranes, at that time, in the wild.' Luckily, the San Antonio Zoo emerged as one of the first menageries to have them in captivity. 'Costume rearing' became necessary in hand-raising the stately white birds with the fluttering tail 'bustles' and lengthy black legs. To diminish imprinting.

Nowadays, these tallest of all North American birds, which, along with the Sandhill Crane *Antigone canadensis*, are the only crane species native to the continent, remain on the 'federally endangered' list. Yet, the red-crowned and moustache-striped waders are making a slow comeback. According to the International Crane Foundation (ICF), by 2021, through intensive conservation, there were 802 individuals—roughly 136 in captivity and the remainder surviving on their own in nature.

'We still have one breeding Whooping Crane pair', San Miguel declares. 'We do artificial insemination', with semen from ICF sent via FEDEX, preserved with ice packets that only allow viability for 24 hours. 'Our male is going through the motions', he laughs, 'Cause she's "purring like a kitten", but we haven't had success (thus far). We're still learning the technique. We're all prepped for next season, though. I'm sure we'll get it'.

A GREAT REPUTATION, WELL DESERVED

As the official bird curator of the zoo (with 22 of those years as avicultural director), Josef oversees 159 avian species. Scaled back from their original 280. 'Lots of the zoos are downsizing now', he confides, admitting that most are carbon copies of each other. No matter the reduction in numbers, there is still plenty of responsibility. And San Miguel shares that obligation with 21 full-time personnel, whom he has personally vetted through careful and thorough background checks. 'San Antonio has a great reputation. That's what we are all about. We have high standards to maintain as we see to all the birds' needs.'

Those 'needs' require a visual check of every specimen daily, making sure each bird is healthy and has a clean enclosure. The staff take blood samples, perform CT scans, do routine worming, and collect faecal samples. They provide a top-notch diet, purchasing all produce from local growers to ensure the finest quality. 'We don't feed them any citric-acid foods, as there is too much iron in citrus.' On-site veterinarians start treatments for sick birds, but Josef assures, 'We train staff to give oral (medications) and injections'.

'We do a lot of hand-raising. You have to have the skill for that. We learn as we go.' Indeed, the wildlife park works at propagating many Population Management Plan species, reproducing according to recommendations from the studbook keepers. Following the strict protocols about where to send their birds and which individuals can be allowed to procreate.

Nowadays, a solitary droplet of blood or a flight feather can supply DNA samples suitable for sexing, likewise for determining relatedness. 'We have to make sure we're not breeding brother and sister...' reflects San Miguel. Hand-raising becomes paramount when the parents don't do a good job and to have exceptional representation at the zoo. 'I want my babies up front', Josef asserts, for the enjoyment and enlightenment of the public. After all, gate takings provide the majority of the money needed for the successful operation of this non-profit safari and adventure park.

AUTHOR
VICKIE LILLO

PHOTOS
GUSTAVO LILLO

Grey Crowned Crane

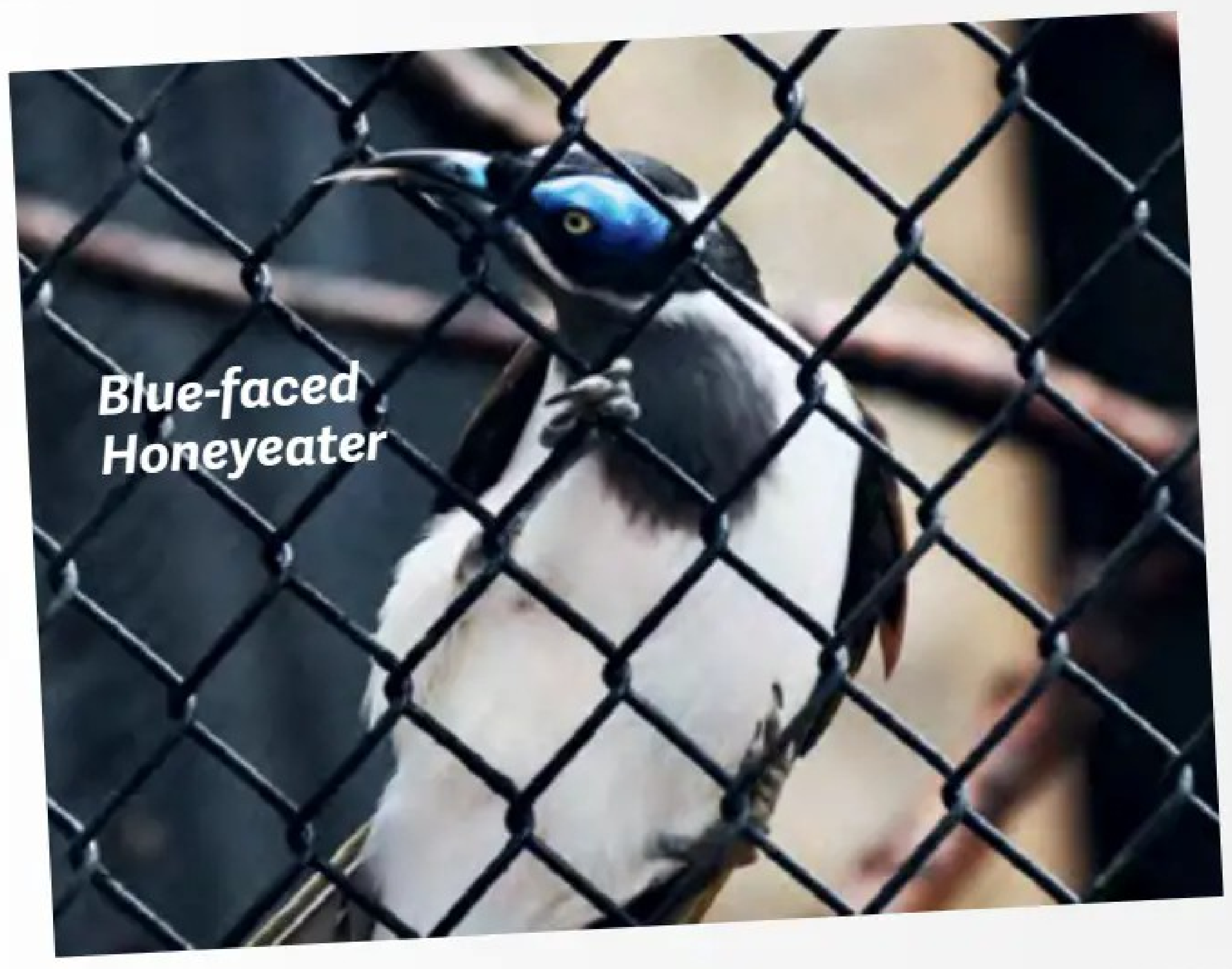
BACK FROM THE BRINK
IN HONOR OF FRANK RUTTENBERG
Whooping Crane Signs

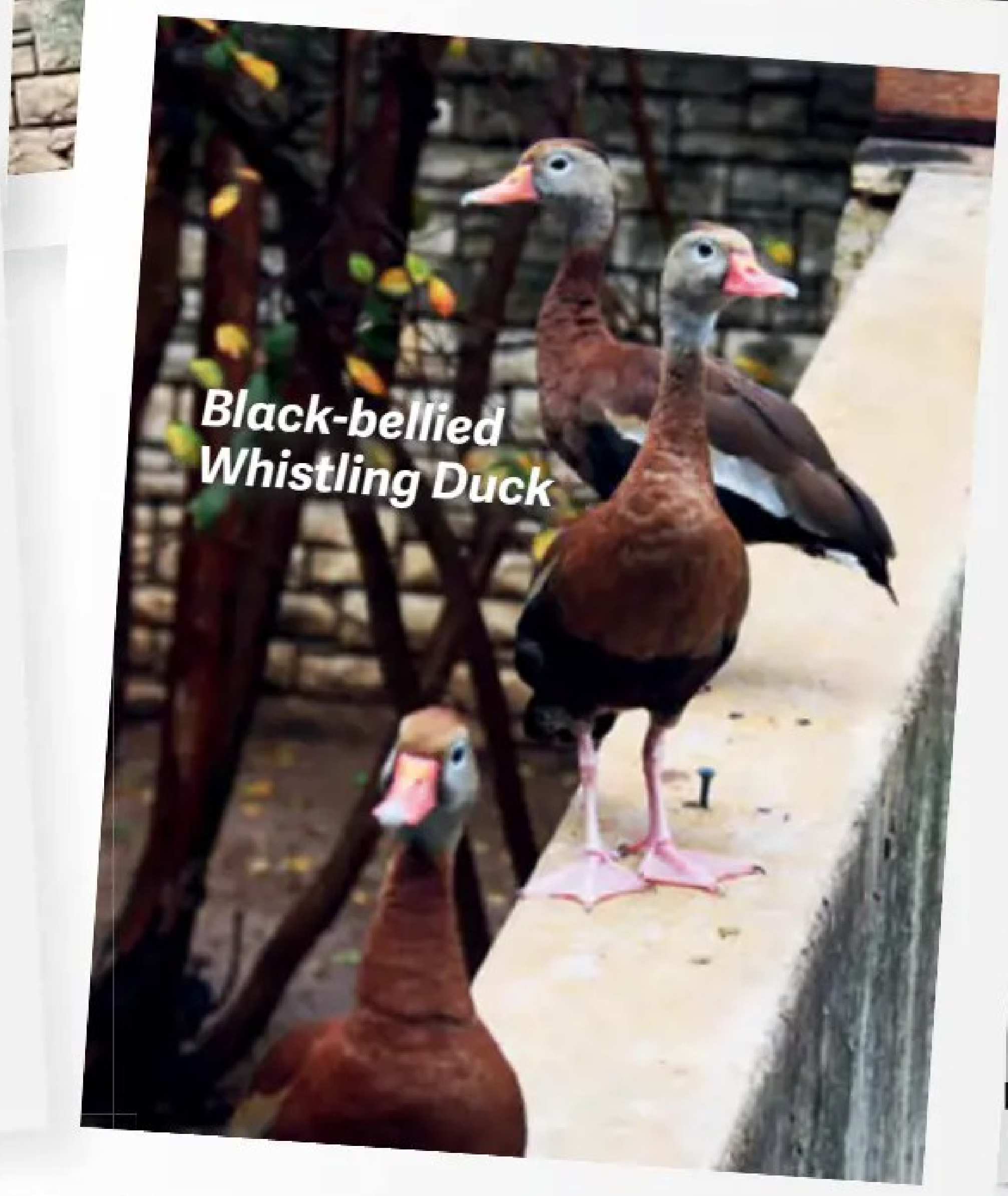
Whooping Crane

Baby Curl-crested Aracari

Bald Eagle Pair
PHOTO NICOLAS LILLO

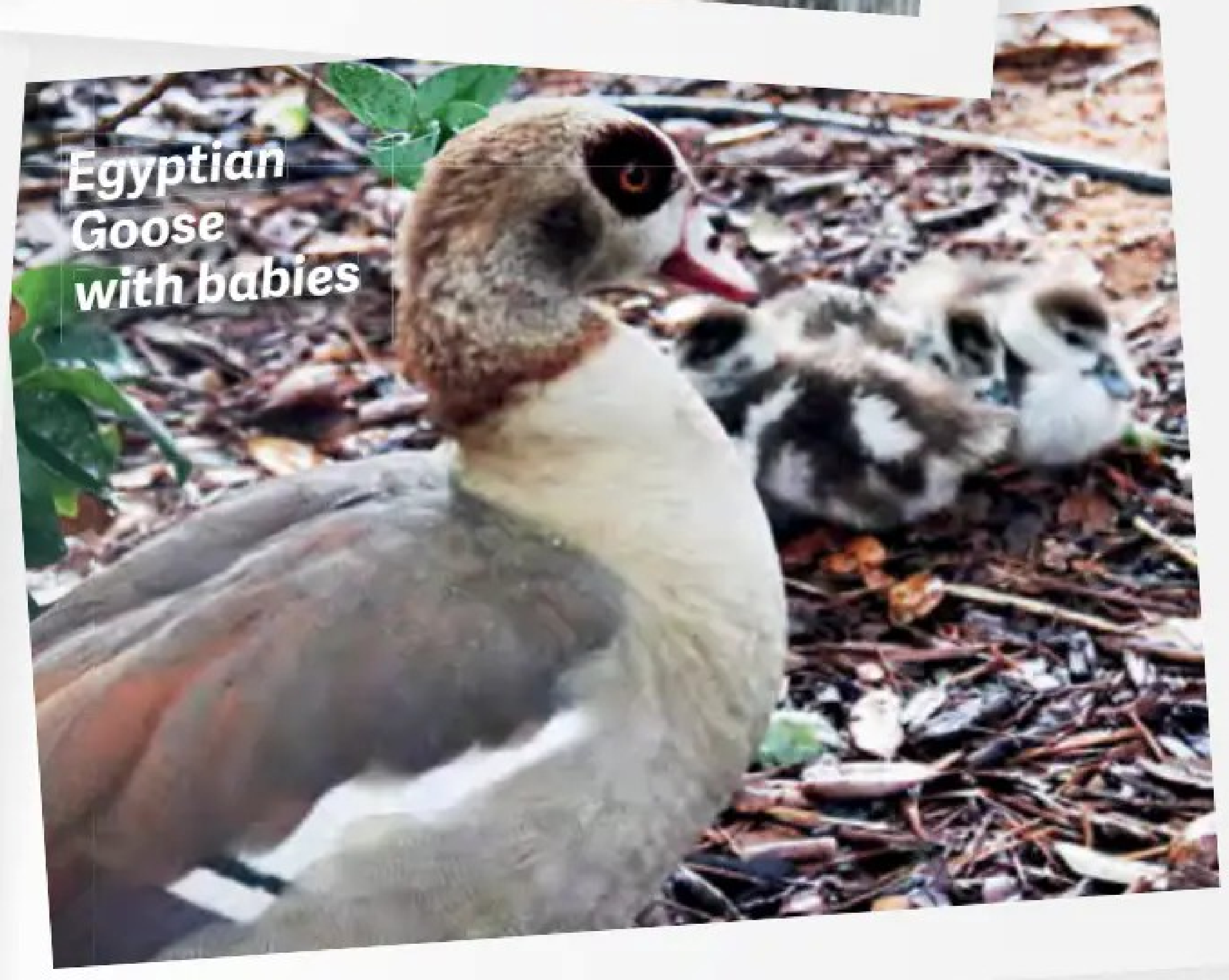
Blue-bellied Roller


Blue-faced Honeyeater


Black-bellied Whistling Duck

Crested Partridge Pair (Roul-roul)

Demoiselle Crane


Egyptian Goose with babies

Hadada Ibis
PHOTO NICOLAS LILLO

AN INVASIVE SPECIES

Adjacent to the lagoon near the Blue Entrance, my husband Gustavo, son Nicolas, and I notice a free-roaming Egyptian Goose *Alopochen aegyptiaca* hovering beside her chicks. An African shelduck in the *Anatidae* family, to be exact, native to southern Israel and Egypt, the reddish-brown goose stares at us. Flashing its provocative dark-coloured eye patch. 'This is a very invasive species here in Texas', Josef admits, confessing additionally that their fuzzy offspring are 'loved by the local cats and raccoons'.

BIGGEST SUCCESS STORY

As we approach the aviaries of the 'Birds of the World' exhibits, San Miguel summarises the biggest success story of the San Antonio Zoo—the Southern Ground Hornbill *Bucorvus leadbeateri*. The largest in the *Bucerotiformes* order, globally, they are listed as 'vulnerable'. Whereas, in South Africa, they are regarded as 'endangered'. Considered one of the 'Big Six' bird species of Kruger National Park—alongside the Kori Bustard *Ardeotis kori* and garishly-decorated Saddle-billed Stork *Ephippiorhynchus senegalensis*—these hornbills are eyed with superstitious reverence throughout African culture.

'It took us a long time to figure out how to breed them', Josef concedes reluctantly. 'They choke a lot.' Rarely drinking, these meat-eaters frequently gag on liquids. Tinted deep ebony, the sexes are easily identifiable—the bare skin of the male's face and gorge is pure red, while its mate rocks a violet-blue addition at the throat. 'Now they are our most prolific pair.' He beams with pride. 'However, we can't flood the "zoo life" with one species of bird. Ultimately, they all take up "real estate".'

IT ALL BEGAN WITH A DONATION

Speaking of 'real estate', the San Antonio Zoo, at 56 acres, was founded in 1914, when high-profile citizen Colonel George W. Brackenridge donated a collection of animals—elk, monkeys, a lion pair, four bears and buffalo—on land he had previously deeded to the city. Using moats instead of traditional cages, in November 1929, the park officially opened. Visitors were offered a rare glimpse of wild animals corralled in two of America's first cageless exhibits. The 'Barless Bear Terraces' and 'Primate Paradise'. 'In the early 80s, they went out to the ranches. The zoo served as a quarantine (centre) for exotics, products of Texas hoofstock.' Through the years, many of these cud-chewing ruminants—sheep, cattle, deer, antelopes, giraffes, and their cousins—plus members of the horse family were displayed here.

Today, 'the City of San Antonio loans us the property. (In essence), They are our landlords'. As an AZA-accredited zoo, the sanctuary undergoes welfare assessments at least once a year. 'We also get USDA inspections of our cranes, ducks and geese', being situated on a major flyway. 'A big thing in the AZA is providing enrichment items for the animals. That involves a lot of work and effort', San Miguel advises, to design food or toys to stimulate natural behaviour. 'You have to keep the animals from getting bored.'

BEHIND THE SCENES

We retreat behind the scenes, where staff are preparing the meds and dietary requirements at the 'Birds of the World' refuge. We traipse from aviary to aviary, admiring the exquisite assortment of avifauna. A Red-legged Seriema *Cariama cristata*—at 40 years of age, the oldest in captivity—is squawking. Or perhaps singing. I guess it depends on your perspective. *'Kuap-kuap-kuap-kuap'* goes its song. I fully expect the fairly-spirited Venezuelan Troupial *Icterus icterus* next door to join in the vocals. 'I call these "Tequila Sunrise" birds', wisecracks Josef, referring to the gaudy yellowish-orange-and-black pigmentation.

As if to defend its rather-drab appearance amid such splendour, a Buff-crested Bustard *Lophotis gindiana* struts by. Nibbling at pellets and fruits in its dinner tray. A bland mixture of grey and brown feathers, this East African ground-dweller quickly gains our attention with its pernickety attitude. The relatively large head and oversized eyes pivot on its seemingly too-thin neck, giving it a somewhat gangly demeanour.

Suddenly, a White-headed Buffalo Weaver *Dinemellia dinemelli* looms in the adjacent coop. This passerine favours butterflies and beetles. Not to mention scrumptious insects flushed from the African savanna in the wake of grazing buffalo. Despite a gregarious personality, with a plain brown back and orange-red rump, it pales in comparison to the Blue-bellied Roller *Coracias cyanogaster*, a celebrity in biological pest control. These lovelies flaunt dark blue wings against a pale-grey hood, extending turquoise 'streamers' 6cm beyond their tails. As friends to agriculture, they congregate beside farmlands, dining on bugs that devastate crops.

We progress down the aisle, greeted by another cobalt/violet-plumed percher, the Asian Fairy Bluebird *Irena puella*. Long perceived as sacred by the indigenous Tagalog peoples of the Philippines, these augural birds of mythology were supposedly capable of predicting the future.

Just then, another species familiar to the river-dwelling Tagalogs, a Luzon Bleeding-heart Dove *Gallicolumba luzonica*, darts across the enclosure. 'Oh, wow, looks like he got shot', my son Nicolas gasps in surprise. A prominent crimson hue—the 'blood' feature—weeps down its ivory belly like an angry petechial haemorrhage. It's no wonder local villagers call this 'near threatened' omnivore *paloma de puñalada*, meaning 'stabbed pigeon'.

AMONG THE RAREST OF BIRDS

Up next, one of the rarest birds on the planet, but satisfactorily bred here at the San Antonio Zoo—the 'critically-endangered' Guam Rail *Hypotaenidia owstoni*. Walnut-coloured, featuring white barring across a black breast, this flightless Ko'ko' bird was practically erased from existence on its home turf in the US territory of Guam. 'Mean' by Josef's standards, it was practically wiped out by the inadvertent introduction of the Brown Tree Snake to the island after WWII. Since 1995, 100+ rails have been released on Rota in the Northern Mariana Islands. Unlike the other Guam native whose population was completely decimated by this same intrusive serpent—the Micronesian Kingfisher *Todiramphus cinnamominus*—the rail became only the second bird, besides the California Condor, to be IUCN-reclassified, from 'extinct in the wild' to 'critically endangered'.

'We've been involved since the early 80s in breeding (the kingfishers)', Josef remembers, when the originals were brought in from Guam. Currently, wildlife experts are still researching the best island in the sub-region of Oceania to release the birds produced in captivity.

A DEDICATED HAND-REARING FACILITY

'We have a dedicated building as a breeder facility for hand-rearing birds', Josef explains. Courtesy of Tim Morrow, named as the reserve's CEO in 2015. This morning, the complex's main residents are two Curl-crested Aracari *Pteroglossus beauharnaisii* youngsters. Uncommon in zoological parks, these darling curly-headed toucans cavort gaily in their enclosure.

San Antonio Zoo policy dictates that all birds bred be gifted, NOT sold. 'We only donate to other AZA institutions. We're blessed', comments San Miguel. 'We've done well. So, we help these other institutions either display them in exhibits or use them for educational purposes. Breeding is what we are known for.' He boasts, 'Most zoos that you go to visit have someone on staff who came from the San Antonio Zoo'. With a superlative legacy as a propagation establishment, the refuge offers 'breeding loans'. After creating a contract between the two entities, they will lend out a breeding pair. The cost of this arrangement? Every second baby hatched belongs to San Antonio Zoo.

THE TOUR CONTINUES

As we meander through the aviaries, a Blue-faced Honeyeater *Entomyzon cyanotis*, forces its beak through the mesh. Known colloquially as the 'banana-bird', this passerine, in the wild, uses nests abandoned by others, happily relining them with spider webs and grass. Josef points to a female Red-breasted Toucan *Ramphastos dicolorus* and whispers, 'She's an "egg-breaker"'. Therefore, no offspring this time around.

'Other zoos send their problem birds to us. We're not sure why, but everything breeds here. We don't know if it's the water...' the director chuckles. Presently, they nurture the only AZA-breeding Palm Cockatoo *Probosciger aterrimus* pair. The male, as if cognizant we're talking about him, waggles his inky-black crest at us. Menacingly. 'Took 19 years to breed them successfully.' Generally laying only one egg every second year, the species has one of the lowest favourable-outcome rates of any parrot. Josef reveals, 'We go to the private sector for help sometimes, and we share (knowledge). We don't hoard information'.

BACK OUT TO THE FRONT OF HOUSE

Outdoors again, a light mist greets us as we saunter past a flamingo exhibit. 'Caribbeans *(Phoenicopterus ruber ruber)* are easy to raise, as are all flamingos. They are very hardy birds.' So hardy that fossil records date back to the Miocene epoch (10 million years ago). 'The zoo also does outreach programs', San Miguel notes, recounting a 'Make a Wish' occasion with a girl who had cancer. 'We took an American Flamingo (*Pheonicopterus ruber)* to see her. Made her day.' There's even the Will Smith Zoo School, an accredited, first-of-its-kind nature-based preschool for kids 3-5. Its goal? To expose youngsters to animals at an early age and foster education.

We stroll by a pair of Bald Eagles *Haliaeetus leucocephalus*, each straddling its own perch. Breeding these regal birds requires a special permit, as there are both southern and northern races. 'The offspring would be hybrids, so we cannot raise them. The eggs must be discarded.' Without warning, a Belted Kingfisher *Megaceryle alcyon* swoops into a nearby tree. 'That's not a zoo captive', Josef divulges. Just another 'stopover' along the avian highway.

SAFETY IS THE FIRST PRIORITY

'Our first priority is safety, with exposure being a big problem for birds. The fly cages have heaters and wind breaks.' Three full-time San Antonio Zoo vets operate an exemplary on-premises hospital. Team-member safety is also of primary concern. 'Every single bird has a danger factor to it. We tell staff to be careful and teach them how to hold it, how to net it.' For example, Josef directs our attention to a female Crested Screamer *Chauna torquata*, sprawled over a clutch of eggs. 'These can be lethal', with their curved carpal spurs on each wing. 'If you get lax or clumsy, they can hurt you.' Yet, on the lighter side, he quips, 'Their legs are like bubble wrap and the babies have big ole diaper butts'.

COVID-19

As we head towards the 'F.C. Hixon Bird House', a habitat opened in 1966 at the zoo's peak of popularity, we speak of the lingering effects of COVID-19. Early on, after the governor ordered its gates to be closed, the reserve permitted guests to re-enter the park by automobile. 'The drive-through zoo saved us. You could buy food and "plush" animals that would be delivered right to your car by masked personnel.' Hundreds of furloughed staff were rehired, and ticket sales generated over AU$3 million.

As the pandemic wore on, CEO Morrow briefed the public on the zoo's status as a non-profit organisation. 'It costs half a million dollars a week to operate the zoo and take care of the animals. I think a lot of that was eye-opening for the community.' Luckily, they had already begun stockpiling meds and basic commodities like toilet paper.

'Unlike other museums or cultural attractions that could close their doors and lay off the staff, the zoos had to keep their

staff on because they had live animals to care for', David Walsh, founder of Zoo *Advisors*, a consultant group and AZA affiliate, conveyed. Essentially, revenue evaporates, while expenses remain.

Even now, the zoo's master plan is being reviewed by Morrow, 'to better prepare for the unexpected'. Like the persistent freezing temperatures during the winter of 2021. In a city unaccustomed to temperatures below 5°C, extreme weather events demonstrated the need for more indoor housing. 'Zookeepers are very dedicated', Josef recalls. 'During Snovid, the electricity was out for 4-5 days, and many birds were kept in kennels.'

THE F.C. HIXON BIRDHOUSE

'The F.C. Hixon Birdhouse', a unique indoor aviary, welcomes tropical species from across the globe. Fourteen individual habitats encircle an open-air rainforest imbued with living plants and free-flying birds. Amethyst *Cinnyricinclus leucogaster* and Emerald Starlings *Lamprotornis iris*... waders like the vividly-coloured Scarlet Ibis *Eudocimus ruber*, stately, Black-necked Stilt *Himantopus mexicanus* and American Avocet *Recurvirostra americana*... African Silverbills *Euodice cantans* and Red-crested Finches *Coryphospingus cucullatus*... all make their home in this iconic sanctuary.

A Crested Coua *Coua cristata*, a cuckoo endemic to Madagascar, shows off turquoise-and-blue bare-skin patches around the eyes. A Pekin Robin *Leiothrix lutea*, hailing from the Himalayas and South China, parades through the aviary. 'Over there', Josef jests, indicating a burgundy Roul Roul *Rollulus rouloul*, wood partridge with elaborate crests, 'Dad's in a "time-out", because he kept chasing the kids'. A nondescript Speckled Mousebird *Colius striatus*, also showboating a feathery headdress, scurries up an overhanging limb.

BACK OUTSIDE

We press on, toward 'The Savanna', gazing across the grassy plains at zebras, White Rhinos, Ostriches, and vultures. San Miguel snickers, 'There's no lack of those scavengers in Texas. It's like "Club Med" for Black Vultures (*Coragyps atratus*) by the pond at the giraffe pen'.

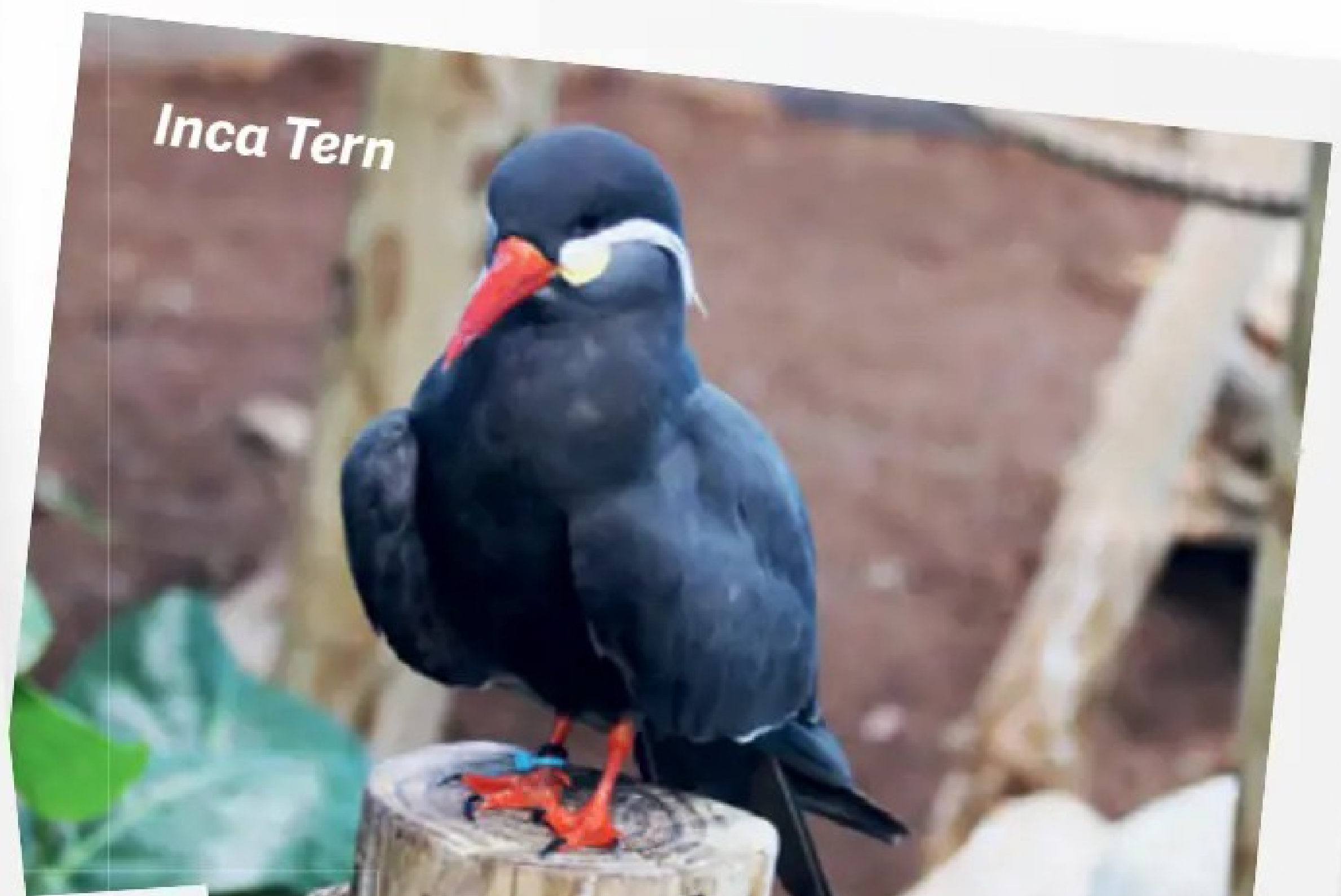
OUR TOUR DRAWS TO AN END

Eventually, we end our San Antonio Zoo experience at 'Africa Live!', where Hippos, Okapis and Colobus Monkeys thrive alongside winged wildlife in an oversized aviary. A blue-faced Abdim's Stork *Ciconia abdimii* scrambles onto a rocky ledge. A Hadada Ibis *Bostrychia hagedash* in breeding mode, judging by the ruby-red culmen on its beak, scans the horizon. We listen... hoping to hear its distinctive call. *'Haa-haa-haa-de-dah.'* No luck. We do, however, have a stroke of good fortune, snagging a glimpse of an outstanding Secretary Bird *Sagittarius serpentarius*. This 'endangered' snake-stomping raptor of Sub-Saharan Africa, adorned with a fluorescent reddish-orange face on an eagle's body, riding atop extra-long, crane-like legs, poses for a picture.

'We're trying for a new mindset about zoos', Josef expounds, 'About keeping birds in captivity'. It's about the salvation of species, especially those that are part of Species Survival Plans, with programs geared to both educating future zookeepers and developing lovers of wildlife.

Vickie, Gustavo, and son, Nicolas in front of the F.C. Hixon Bird House
F.C. HIXON
BIRD HOUSE

Immature West African Black Crowned Crane


Inca Tern

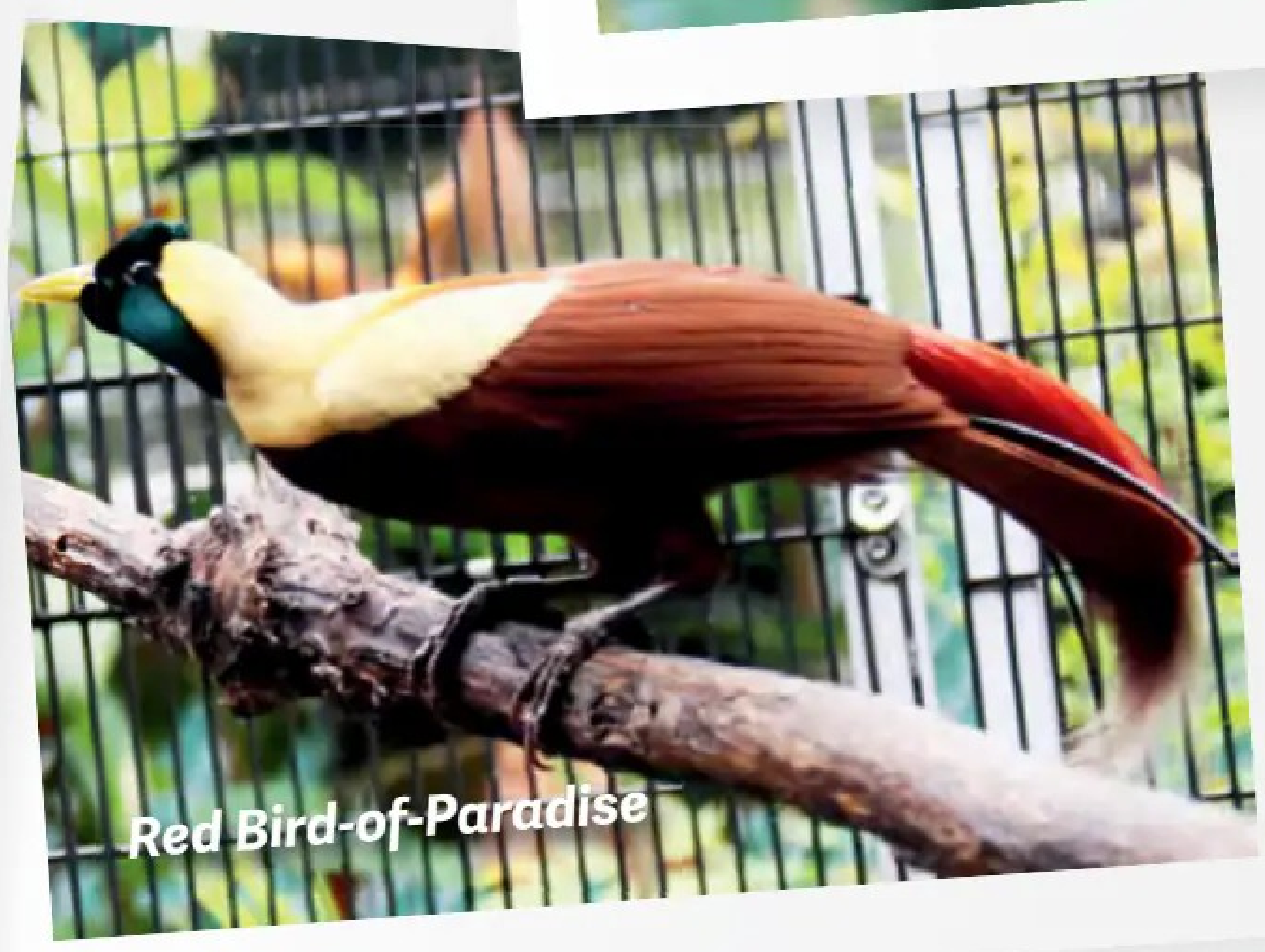
Luzon Bleeding-heart Dove

Great Blue Turaco

Venezuelan Troupial

Pekin Robin

Pygmy Falcon


Red Bird-of-Paradise

White-headed Buffalo Weaver

AUTHOR
GARY FITT
CEO
Save the Gouldian Fund

PHOTOS
RODNEY 'BUSHY' BUSHELL

Double-barred Finches (black-rumped subspecies)

A Tribute to 'Bushy'

Rodney 'Bushy' Bushell
PHOTO MIKE FIDLER

PASSED AWAY 10/12/2024, AGED 65

Black-headed and Red-headed Gouldians

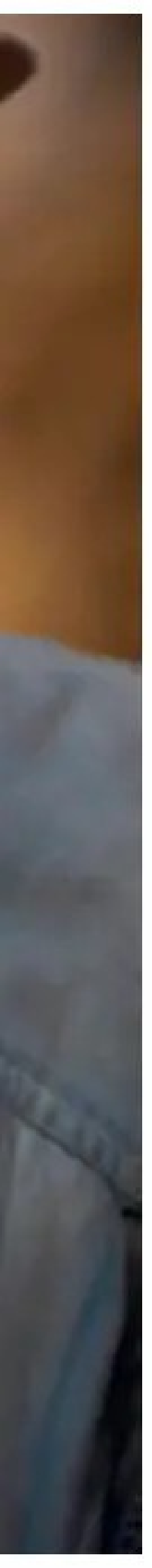
Bushy was always accompanied by his loyal companion, Bundy
PHOTO MIKE AND ELISABETH FIDLER

THE Save the Gouldian Fund (STGF) has been working on Gouldian conservation in the East Kimberley for the last 22 years and relies on several locals from Wyndham-Kununurra to successfully undertake our work. For several years, Rodney Bushell was one of our strongest local supporters. Affectionately known as 'Bushy', he was a real character and identity in the Wyndham area. As highlighted in articles about the 2024 Gouldian count last September, Bushy was unwell at that time and deteriorated soon after. He passed away on December 10, 2024 (with family in Victoria). He is greatly missed.

Our first encounter with Bushy was at the start of the 2018 Gouldian count when Bushy and others were maintaining a water point for the finches at the Wyndham Caravan Park. These dry season sources of water become a mecca for the birds, and several hundred Gouldians were visiting daily in 2018. The site became quite territorial with favoured seating positions claimed by Bushy and another local, but we were still able to use it for the count and in the process got to know the heavily bearded Bushy with his big hat.

Bushy was a keen birder and photographer, and after that year, he began establishing water points in other, more natural locations. From then onward, Bushy assisted STGF whenever and wherever he could and became a great ally. He was always willing to share his views on Gouldians and their numbers, not always accepting what the researchers thought, and he had learned a great deal about their needs. It was unfortunate that Dr Sarah Pryke and her students operating in the Wyndham area up to 2014 missed out on meeting Bushy. But Bushy did interact with other researchers supported by STGF who worked in the area.

He provided advice to Dr Hamish Campbell and his team from Charles Darwin University during their research from 2016 to 2019 on movement of Gouldians and other finches and he interacted regularly with Dr Claudia Mettke-Hoffmann and Gerhard Hoffmann, from the University of Liverpool, UK, who have been conducting behavioural research on Gouldians for the last few years. Claudia and



Star Finches

Goudlians drinking at a waterhole

Male Red-headed Gouldian

Male Red-headed Gouldian

Azure Kingfisher with lunch

Gerhard loved their interactions with Bushy during their annual visits.

As he lived just two houses down from the STGF Wyndham Conservation and Research Facility in Wyndham Port, Bushy became one of the custodians of keys to our building and kept a general eye on the place. He was a huge help to us in 2021 when we had to clear out all our equipment and furniture items when the Shire of Wyndham East Kimberley Council condemned the building and terminated our lease late in 2020. All this occurred during the disruptions of COVID-19 when no one from outside WA could enter the State. Despite extended negotiations with the Council, we were unable to save our facility and were required to vacate the building. Bushy became the official STGF representative to coordinate the huge clearance sale of most of our items (furniture, air conditioners, fridges, freezers, etc.) to interested locals in October 2021. He later confided how nervous he was about having so much cash on hand, but he had a special hiding place for it!

As a photographer, Bushy developed great skill. He took to bird photography with a passion, and that's what he was doing when we first met him at Wyndham Caravan Park. Photography became his main pastime; he was out before dawn each day to photograph, returning mid-morning to sort and post his best images. He was a regular contributor to various Facebook groups, such as East Kimberley and Northern Territory Birds. Rhonda Crerar, administrator of the site, described Bushy as 'a bit of a rough diamond with a heart of gold and a true gentleman...' when advising about his passing. We currently use a Rodney Bushell image as the cover image on the STGF Facebook page.

Bushy began establishing water points for the finches along King River Road and maintained them right through the dry season. These sites were enhanced over the years and became a mecca for birders and photographers as a significant proportion of the local finches located the permanent water points and came in their thousands. Bushy enjoyed taking visitors to his 'secret site', but he was also happy for his site to be part of the Gouldian count each year. We continued that tradition in 2024, even though Bushy was too ill to help.

When in the field, Bushy was always accompanied by his loyal companion, Bundy, a beautiful Staffy. Bundy would guard the vehicle or sit beside Bushy at the waterhole, always on the lookout. Whenever we visited Bushy's home, Bundy would be there to greet us at the gate.

Bushy's background included being part of the operation of the once-vibrant Wyndham Meatworks, where he managed the stock when they came in from local cattle stations. He had plenty of stories about those times when Wyndham Port was a bustling community.

Over the years, we all became fond of Bushy, the character. Sometimes prickly, but with a heart of gold. He will be greatly missed on our future visits to Wyndham. STGF thanks him for all his support.

A pair of Scarlet Macaws fly over the forest
PHOTO OSWALDO HERNANDEZ-CC BY NC

THE AUTOMATIC DETECTION OF

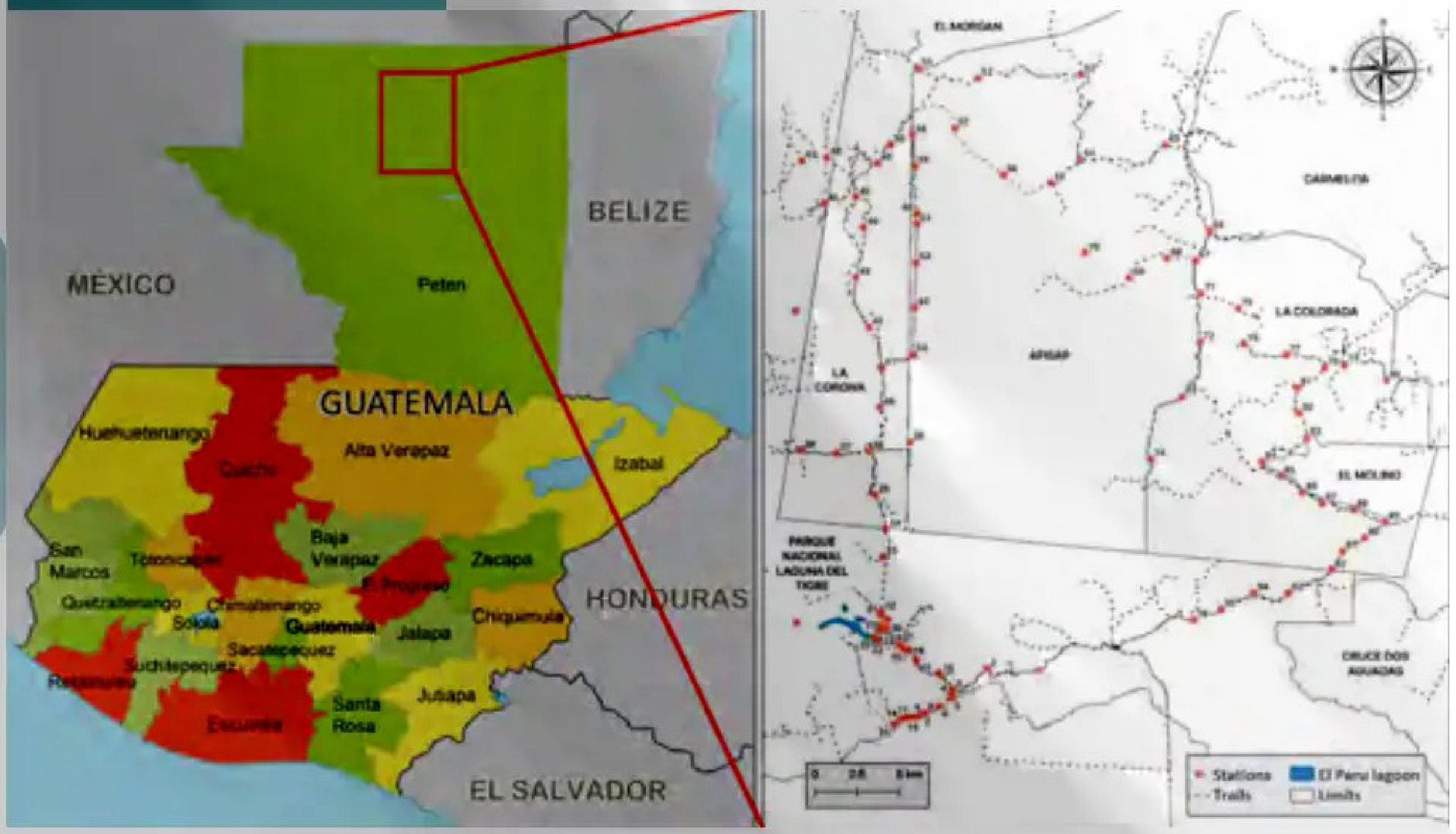
Scarlet Macaws in the Maya Biosphere Reserve

AUTHOR
DR DAVID WAUGH
Correspondent, Loro Parque Fundación

INTRODUCTION

The dazzling Scarlet Macaw *Ara macao* is the most widely distributed of all the macaw species, helping it to remain classified as Least Concern on the IUCN Red List of Threatened Species. However, the Mesoamerican subspecies A. m. cyanoptera, which is distributed across southern Mexico, Belize, Guatemala, Honduras, and Nicaragua, is highly threatened by poaching and habitat loss, largely driven by intentional forest fires, cattle ranching, and the expansion of human settlements. For more than two decades, the Wildlife Conservation Society (WCS) Guatemala Programme has been leading efforts to save the Scarlet Macaw population of the Maya Biosphere Reserve (MBR) from extirpation with a project encompassing diverse activities, and since 2012, the Loro Parque Fundación has provided support to the project.

Map showing the location of the Maya Biosphere Reserve and the sites of ARUs
CREDIT WCS-GUATEMALA


MEXICO
BELIZE
Peten
GUATEMALA
Huehuetenango
Alta Verapaz
Izabal
San Marcos
Baja Verapaz
Zacapa
Quetzaltenango
Chiquimula
Solola
Guatemala
Jalapa
Sacatepequez
Suchitepequez
Santa Rosa
Jutiapa
HONDURAS
EL SALVADOR
EL MORGAN
CARMELITA
LA COLORADA
LA CORONA
EL MOLINO
PARQUE NACIONAL LAGUNA DEL TIGRE
CRUCE DOS AGUADAS
Stations
Trails
El Peru lagoon
Limits

MAYA BIOSPHERE RESERVE

The MBR is one of the last remaining rainforest strongholds in the region, situated at the heart of the Selva Maya, a tri-national forest spanning Guatemala, Belize, and Mexico. Thirty six percent of the MBR is the core zone formed by national parks and biotopes where only scientific investigation and low-impact tourism are allowed. Along its southern border, the MBR has a 15km-wide band of buffer zone (24 percent) where agriculture, farming, and other productive activities are permitted with the aim of reducing the pressure on the other zones. Lastly, there is a 2,096,541-acre multiple-use zone (40 percent of the MBR) where sustainable and low-impact land uses are allowed, including controlled logging of hardwood tree species in forest concessions.

Before the project's inception, extensive areas of the MBR's Laguna del Tigre National Park where macaws prefer to nest were under threat from colonisation and subsequent habitat loss. Thus, the protection of habitat and nests was imperative, and, in partnership with the Guatemalan Government and local communities, including raising awareness through environmental education, the project has succeeded in substantially improving the protection of five of the major macaw nesting sites remaining in Guatemala. This level of protection is ongoing, providing the opportunity for the project to monitor the fledging rates of macaws at these key nesting sites.

Checking Scarlet Macaw nests means having to scale large trees in the forest
PHOTO WCS-GUATEMALA

INNOVATIVE INTERVENTIONS

The project is also working to accelerate the recovery of the wild Scarlet Macaw population through innovative interventions, including management activities designed to maximise the natural production of wild macaws. These include taking low-weight chicks from their nests to be raised at a field laboratory and placing laboratory-raised chicks in foster wild nests when viable or releasing laboratory-raised macaws back into the wild following their preparation in an in-situ flight cage. The project is also increasing the availability of nesting cavities by enlarging natural cavities to create potential nests and preventing and combating Africanised Bee infestation of nesting cavities.

PASSIVE ACOUSTIC MONITORING

From the beginning, the project has attempted to identify the distribution and use by the Scarlet Macaws of the habitat where they breed in Guatemala. Until now, this has relied on the direct observation of the macaws by trained observers, but this method has its limitations in the closed canopy forest. Furthermore, regular access to all areas is not guaranteed, and can be difficult in the rainy season for both vehicles and foot patrols. To improve its accuracy in determining the occupancy in the MBR of macaws throughout the year, the project is now testing another method called passive acoustic monitoring.

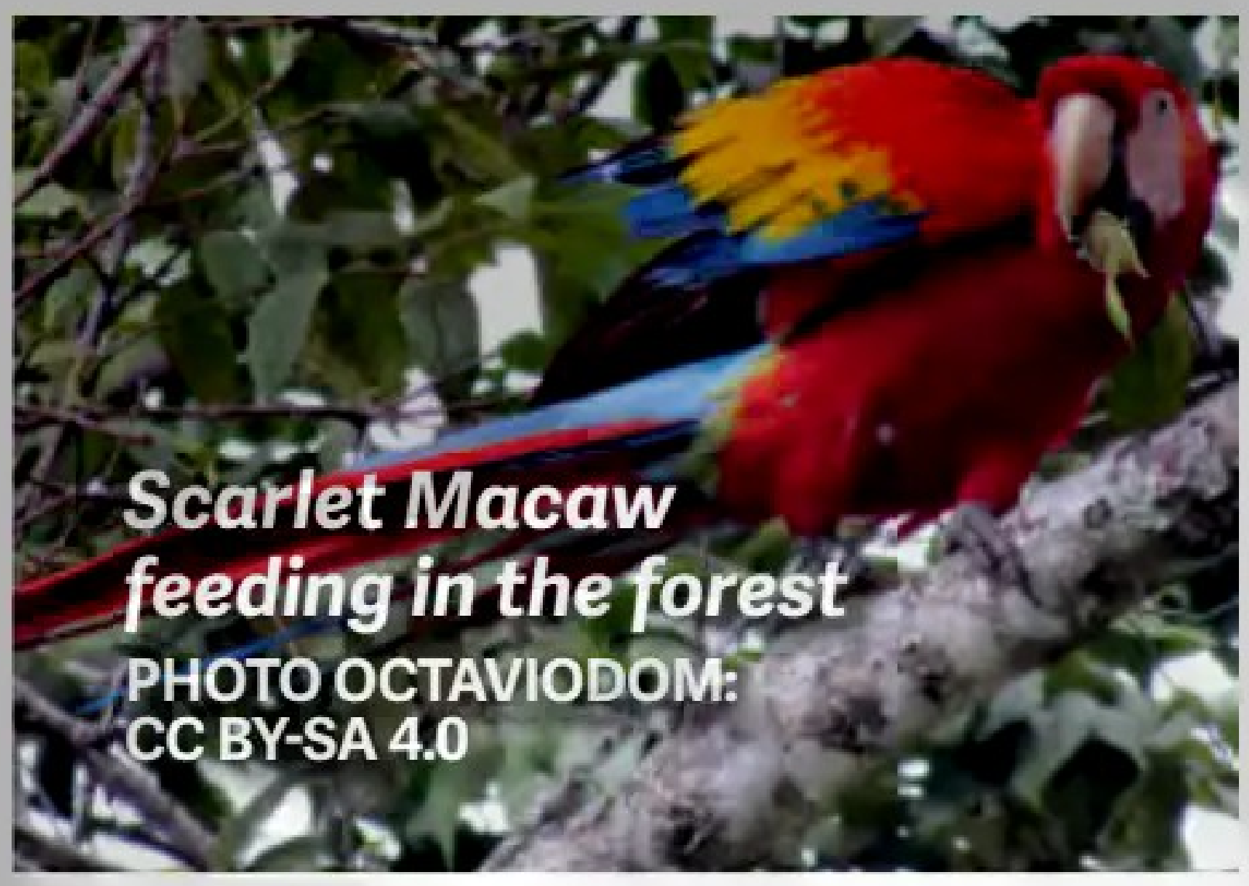
With the recent rapid advances in technology, this method is now comprised of two principal steps. The first is that the project team has strategically placed Automatic Recording Units (ARUs) at 96 sites in the forest habitat. Each ARU constantly records sounds from the surrounding environment, including the calls of Scarlet Macaws. The second step involves feeding the resulting recordings into specific recognition software, which has been trained on all known calls and sounds of a target species, in this case, the Scarlet Macaw. Therefore, by a process of matching, the software can rapidly detect all instances where vocalising macaws were recorded by the ARUs.

Northern Scarlet Macaw Ara macao cyanoptera
PHOTO JOSE ANTONIO LINAGE ESPINOSA:CC BY NC

Observations of macaws are made from within the forest and from observation towers above the forest canopy
PHOTO WCS-GUATEMALA

The installation of ARUs in the forest
PHOTO WCS-GUATEMALA

Scarlet Macaw at its nest
PHOTO GEOVANYTUT: CC BY NC



Scarlet Macaw feeding in the forest
PHOTO OCTAVIODOM: CC BY-SA 4.0

Bogged in the rainy season
PHOTO WCS-GUATEMALA

TRIAL AND ERROR

As with the roll-out of any novel method, there is likely to be a period of trial and error. The project team must ensure that the ARUs are placed in the optimal spatial configuration and that the software setup proves to be suitable for effective analysis of this type of vocalisation. If the right conditions are finally achieved to prove the viability of this method of monitoring system, the aim is to use it over the long term, not just in Guatemala but also across the entire Selva Maya.

THE LINK BETWEEN

Birdsong and Human Language

Wild Zebra Finch

PHOTO GLENN ROMAN

Wildtype Budgies

PHOTO SIMON DEGENHARD

AUTHOR

DR KIT PRENDERGAST

BA & BSc (First Class Honors), PhD, Postdoctoral Researcher

INTRODUCTION

Parrots are well known for their ability to mimic human speech, and some species have even demonstrated an understanding of the words they use. Ornithologists have realised this is more than just a quaint curiosity, and that we might be able to learn about speech through the vocal learning of parrots. Ornithologists have been interested in parallels between parrot and human speech for centuries.

In 1879, Wilks published an article in *The Journal of Medical Science* titled 'Notes from the History of my Parrot, in reference to the Nature of Language'. Here, he argued that language is not unique to humans and made a strong case for dismantling the outdated idea that 'man' was somehow above and separate from all other animals. He writes: 'Of all the attributes of man which have been considered sufficiently distinctive to separate him from the lower animals, that of speech has been regarded as of the first importance... The subject of language has hitherto been treated by scholars and men of letters, who have discussed its various forms in relation to a given basis, whereas, at the present time, an endeavour is being made to proceed a step further towards the origin of language by its investigation from a physiological or scientific standpoint. If this be done, and we study the nature of language... we may perhaps discover that it is not altogether so different from what we may call the language of the lower animals. There is so much in man which is common to the creatures below him, that it is impossible to discuss rightly many of his propensities, affections and passions, without considering the form or character which these take in similar organisations.'

Wild Zebra Finches

PHOTO GLENN ROMAN

ONE HUNDRED AND FIFTY YEARS ON, SCIENTISTS HAVE NO DOUBT

A century and a half later, scientists do not doubt that due to evolution, we share many neural pathways with birds, and birds have intelligence rivalling that of a young child. Famous examples include the studies on Alex the African Grey Parrot *Psittacus erithacus*, and later Griffin and Athena, by Irene Pepperberg, who not only could say an incredible array of words but demonstrated they could understand and use speech meaningfully to communicate. This is despite big differences in human and bird anatomy in the production of speech (i.e. parrots have beaks, and we have vocal tract differences).

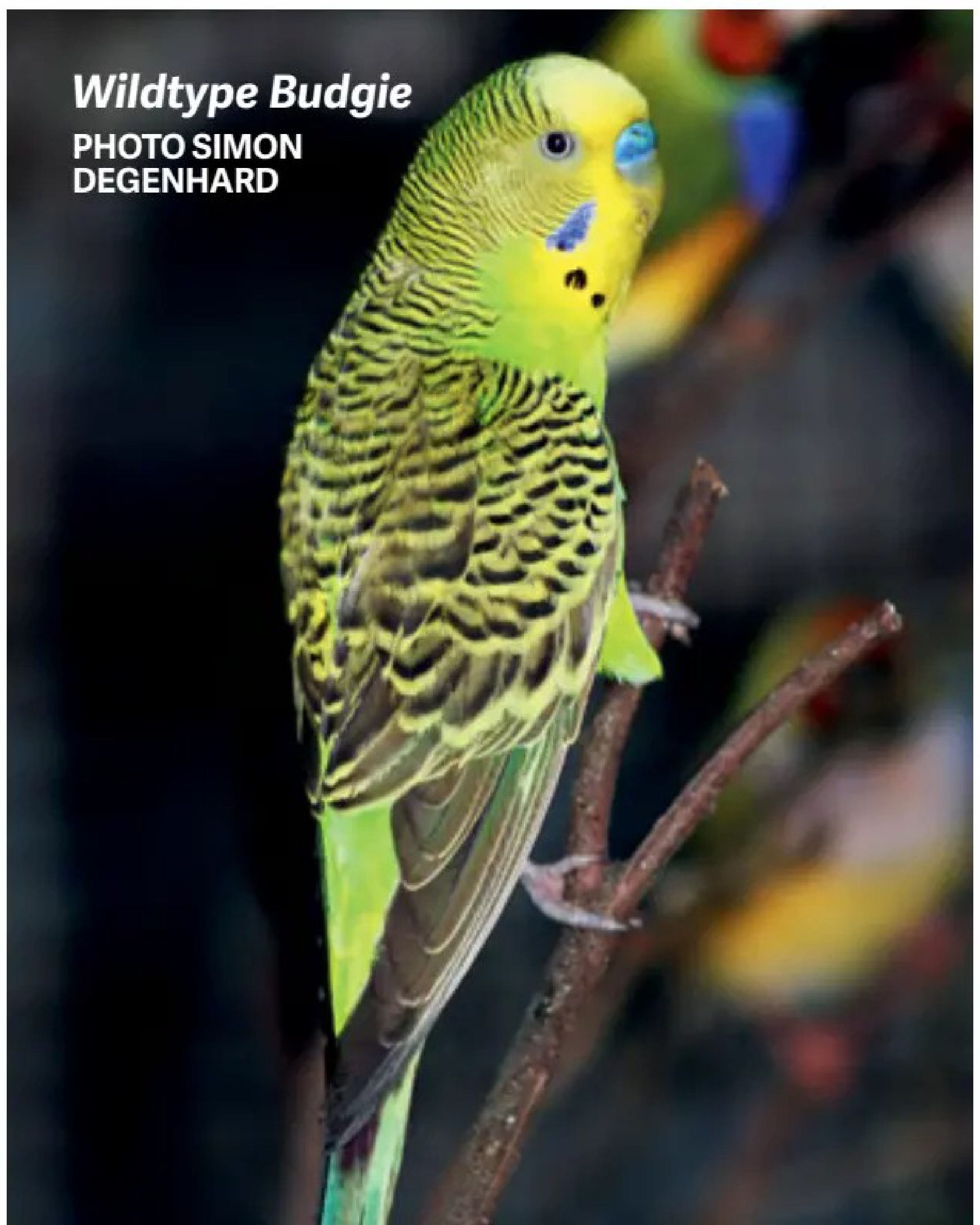
The study of human language has revealed that despite the plethora of languages spoken by different cultures and ethnicities across the world, there are certain consistent patterns and principles, in particular, universal patterns in the inventory and organisation of segments: units that are separated by rapid acoustic transitions which are used to build syllables, words, and phrases.

A study by Mann et al. published in Scientific Reports in 2021 revealed that these universal principles also applied to segment structures in parrot song. Here, looking at Budgerigars *Melopsittacus undulatus*, which is a vocal learning parrot, they reported patterns in the acoustic output that matched universal patterns well-documented in human speech with regards to phonology: the system of contrastive relationships among the speech sounds that constitute the fundamental components of a language. Across four independent Budgie populations, like humans, their song is comprised of vowel elements (open sounds, i.e., a, e, i, o, u) and consonant elements ('closed' sounds, produced when the breath is partially obstructed from the vocal tract, e.g. b, d, t, g). And for Budgies, like in humans, the organisation of these elements within syllables is not random: like human speech, segments at the start of a vocalisation are more likely to be consonant-like, whilst segments at the end are more likely to be longer, quieter, and lower in fundamental frequency.

BRAIN STRUCTURE

When it comes to brain structure, there are both similarities and differences between humans and birds capable of vocal learning. Vocal learning is the ability to acquire vocalisations through imitation rather than instinct. Vocal learning is the substrate for human language and is relatively rare across the animal kingdom. In birds, it has been demonstrated in parrots, passerines (songbirds) and hummingbirds, but most famously in parrots. Interestingly, when it comes to brain correlates, the three vocal learning bird groups have seven similar, but not identical cerebral vocal nuclei, distributed into two vocal pathways, one posterior and one anterior. Humans also appear to have a posterior vocal pathway, which includes projections from the face motor cortex to brainstem vocal lower motor neurons, and an anterior vocal pathway, which includes a strip of premotor cortex, the anterior basal ganglia, and the anterior thalamus. None of these pathways, however, are found in non-vocal learning animal groups, suggesting that even if vocal learning evolved independently among birds and humans, it did so under strong genetic constraints of a pre-existing basic neural network of the vertebrate brain.

A recent study, 'Convergent vocal representations in parrot and human forebrain motor networks' by authors Zetian Yang and Michael Long, published in the journal *Nature* in May 2025, has delved further into investigating the similarities between humans and birds when it comes to song and speech. In this study, the authors looked at both Budgies and Zebra Finches *Taeniopygia castanotis*. Budgies are highly adept at copying human speech; in fact, Puck, a pet Budgie who lived in the 1990s, had a vocabulary of 1,728 words! (a Guinness World Record). Zebra Finches, although being capable of vocal learning, have a less flexible vocal repertoire. To understand how Budgies accurately imitate people and produce a vast diversity of distinct sounds, the authors surgically implanted tiny high-density silicon probes into four Budgies' brains in a particular region linked to the syrinx, the avian vocal organ. They discovered that a brain region called the anterior arcopallium (AAC) operates more similarly to parts of the human cortex that are linked to speech-motor function than the equivalent AAC Zebra Finch region.


Wildtype Budgie
PHOTO SIMON DEGENHARD

In Budgie brains, as well as in human brains, vocalisations are encoded through discrete, repeatable neural pathways. In Budgies, the AAC neurons form a functional vocal motor map that reflects the spectral properties of ongoing vocalisations, where the neurons fire following the tone and type of sound a bird makes. Because Budgie neural activity is so closely aligned with the chirps, warbles, and calls the birds produce, the researchers were able to chart the undulating frequency of a call based on the signals of five neurons alone. This is like the modular fashion of human brains concerning speech, where certain neurons fire in association with lip or tongue movements involved in vocalisation. Scientists can also chart speech in humans based on the firing of neurons, to the point where they can predict what people who have lost the ability to talk are intending to say based on their brain signals. Therefore, in both humans and Budgies, we see that particular brain cells seem to be driving consonant sounds and vowel sounds.

This contrasts with what was found in the Zebra Finches, where there was no organising principle in the corresponding forebrain circuitry; instead, vocalisations seem to be coded by complex, uninterpretable arrays of neuron activity. Therefore, although Zebra Finches can learn and repeat intricate songs, their brain activity suggests they have limited ability to alter what they've learned or to improvise.

TWO RELATIVELY DISTANT EVOLUTIONARY GROUPS

It is fascinating, but also not surprising, that despite coming from two relatively distant evolutionary groups—Mammalia and Aves (a branch of Reptilia)—songbirds and humans have converged on similar patterns with song and speech. This indicates that there are genetic constraints to the acquisition of speech and song, but also that, given the right selective pressures, language can evolve in both lineages.

By comparing the location, function, genome, and transcriptome of vocal learning-related brain regions, it has been confirmed that songbird singing and human language-related neural control pathways have certain analogies. The process of vocal learning—a complex, acquired social behaviour—requires both sensory and motor skills. It occurs through external auditory input (hearing vocalisations) and then repeated vocal imitation practice to form a stable pattern of vocal information output. In parallel evolutionary branches, humans, songbirds, and parrots share striking similarities in vocal learning behaviour. In both humans and these bird groups, vocal learning involves auditory feedback and the use of complex syntactic structures.

REMARKABLE SIMILARITIES BETWEEN INFANT HUMANS AND YOUNG SONGBIRDS

There are remarkable behavioural similarities between speech acquisition in human infants and song learning in songbirds, which are absent in non-human primates. Both also have a sensitive period where vocal learning is optimised, whereby humans and songbirds have similar critical periods for vocal learning, with a much greater ability to learn early in life. Humans also share with songbirds an early phase of learning that is primarily perceptual, which then serves to guide later vocal production. Like babies, chicks learn their complex vocalisations early in life and show a strong dependence on hearing adults they will imitate, as well as themselves as they practice, and a waning of this dependence as they mature. These parallels between human infants and bird chicks are quite striking, considering non-human primates don't even exhibit this behaviour. In both cases, the young form auditory memories of vocalisations during their sensitive period and then acquire their own vocalisations through a 'babbling' period, called 'subsong' in chicks.

In the paper 'Brains for birds and babies: Neural parallels between birdsong and speech acquisition', published in *Neuroscience & Biobehavioral Reviews* in 2017, authors Jonathan Prather, Kazuo Okanoya and Johan J. Bolhuis also demonstrate the neural parallels. They found that in birdsong and human speech, neural activity is lateralised, i.e. where some neural functions or cognitive processes are specialised to one side of the brain. There are also mirror neurons—a class of neuron that modulate their activity both when an individual executes a specific motor act as well as when they observe the same or similar act performed by another individual—that link perception of song/speech, and performance of song/speech, and appear to contribute to sensorimotor learning. When human infants learn speech, there is a continual interaction between Wernicke's area of the brain (crucial for language comprehension) and Broca's areas of the brain (associated with speech production and articulation), which are similar to the interaction between secondary auditory regions and sensorimotor regions of the brain that occur when young songbirds are learning songs.

Bengalese Finch
PHOTO JOHANN ALEXI

SPECIAL FOREBRAIN REGIONS

Both lineages have also evolved special forebrain regions related to vocal motor control (how to produce the vocalisations), and vocal learning, which are organised and closely associated with parts of the brain involved in sound (the auditory cortex). Specifically, in songbirds, a network of interconnected brain nuclei, known as the song system, is involved in the perception, learning and production of song. Parts of the song system are analogous—and possibly homologous (evolved from a common ancestor to perform the same function)—to human basal ganglia as well as regions in the frontal cortex that are involved in speech. In both humans and songbirds, as well, the vocal 'motor regions' are also involved in auditory perception, and continual interaction between auditory and motor regions to match what is heard and what is produced is necessary for learning and maintenance of speech and birdsong.

Some birds also exhibit syntax. In human speech, this refers to the arrangement of words and phrases to create well-formed sentences in a language. Such syntax in simple form can be seen in some songbirds, e.g. Bengalese Finches Lonchura striata domestica have types of note-to-note transition rules.

GENETIC LEVEL SIMILARITIES

There are also similarities at the genetic level. The forkhead box P2 (FOXP2) gene is specifically implicated in speech and language. The genetic sequence is over 90% conserved between humans and songbirds. It is implicated in song in birds, being seasonally and developmentally regulated by singing activity. Furthermore, experimentally downregulating FOXP2 has been shown to impair singing.

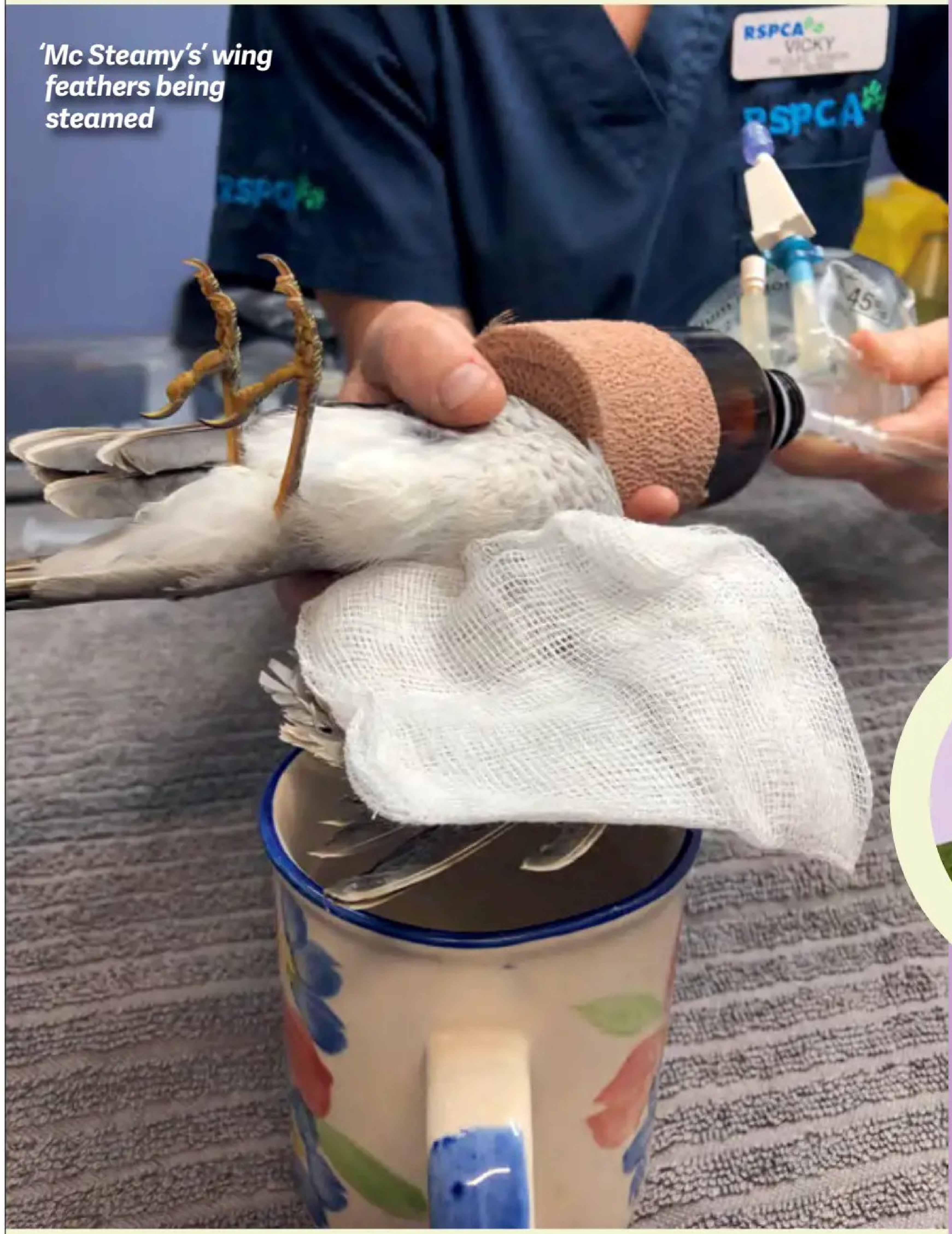
FINAL COMMENTS

Our feathered songbird and parrot friends display striking similarities at all levels to us in their vocal learning. By studying them, we may gain valuable insights into ourselves—and, perhaps more importantly, come to better understand and appreciate these incredible, intelligent creatures.

WILD CORNER

'MC STEAMY' THE
Noisy Miner

AUTHOR & PHOTOS
DR CLAUDE LACASSE
DVM, MANZCVS
(Australian Wildlife)



'Mc Steamy's' wing feathers being steamed

'MC Steamy', the Noisy Miner, was found on the ground, unable to fly. The left wing could not move properly, but the bird was alert and active. The miner was anaesthetised with isoflurane for examination and radiographs. No fractures were detected, but most of the primary feathers on the left wing were bent. The feathers were not completely broken but had a severe bend in the middle of their shafts.

Damaged feathers can be just as debilitating for birds as a fractured wing. Luckily, I was able to use a technique of steaming the feathers to straighten them again. Although very simple and not a very technical veterinary procedure, this method can be quite successful. Using simply a coffee mug full of boiling water, the feathers are placed between the hot cup of water and a small hand towel or gauze until the steam renders the feather shafts softer and pliable. The shafts can then be gently manipulated back into their normal straight position.

This procedure is usually not successful if the feather shafts are broken rather than bent. When broken, the feathers end up breaking completely shortly after. But 'Mc Steamy' was lucky and recovered fully. The miner was placed in an aviary to ensure that the feathers would not break and would sustain the pressure of flight. The bird was successfully released to the wild a week later.

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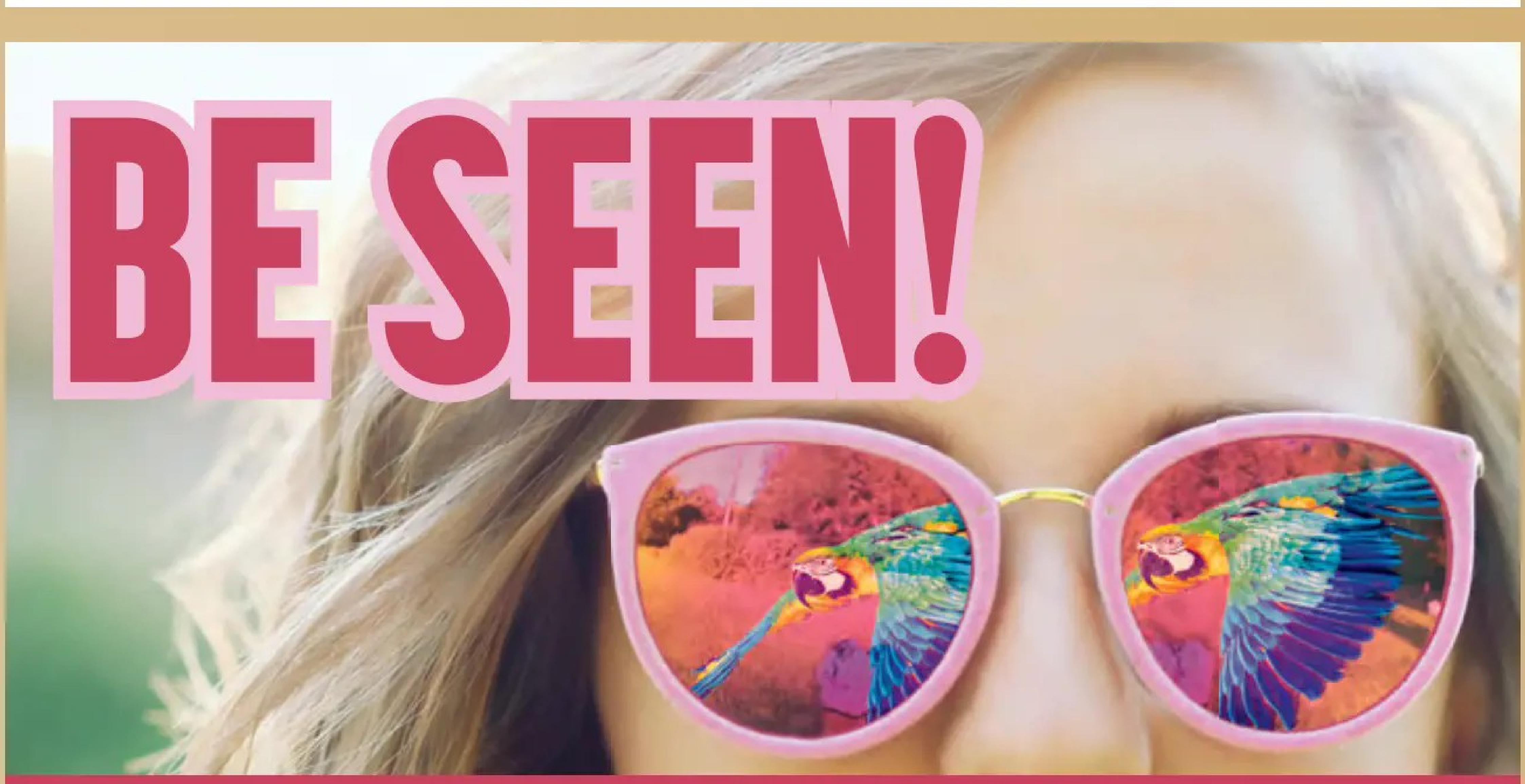

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